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THE MAGAZINE FOR INFORMATION EXECUTIVES

DECEMBER 1991
VOLUME FIVE NUMBER FIVE
SEVEN DOLLARS

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VOLUME 5, NUMBER 5

COVER STORY

Up and Running

All bets were on when New York's recession-pinched Off-Track Betting agency set about reinventing itself through technology.

By David Freedman

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*In the winner's circle 30
Cover photo by Kent Hanson*

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Taking a Byte out of Crime

From the cops to the courts, law-enforcement officials are using IT to put criminals behind bars.

By Thomas Kiely

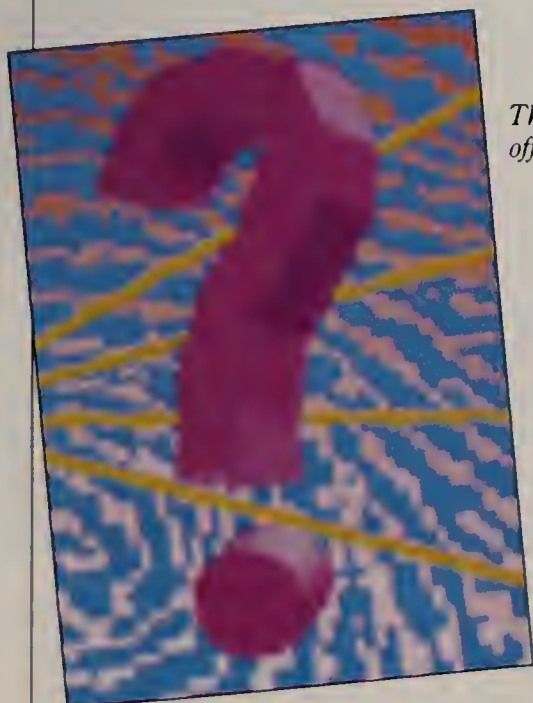
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Today's help desks do more than just answer the telephone when trouble calls.

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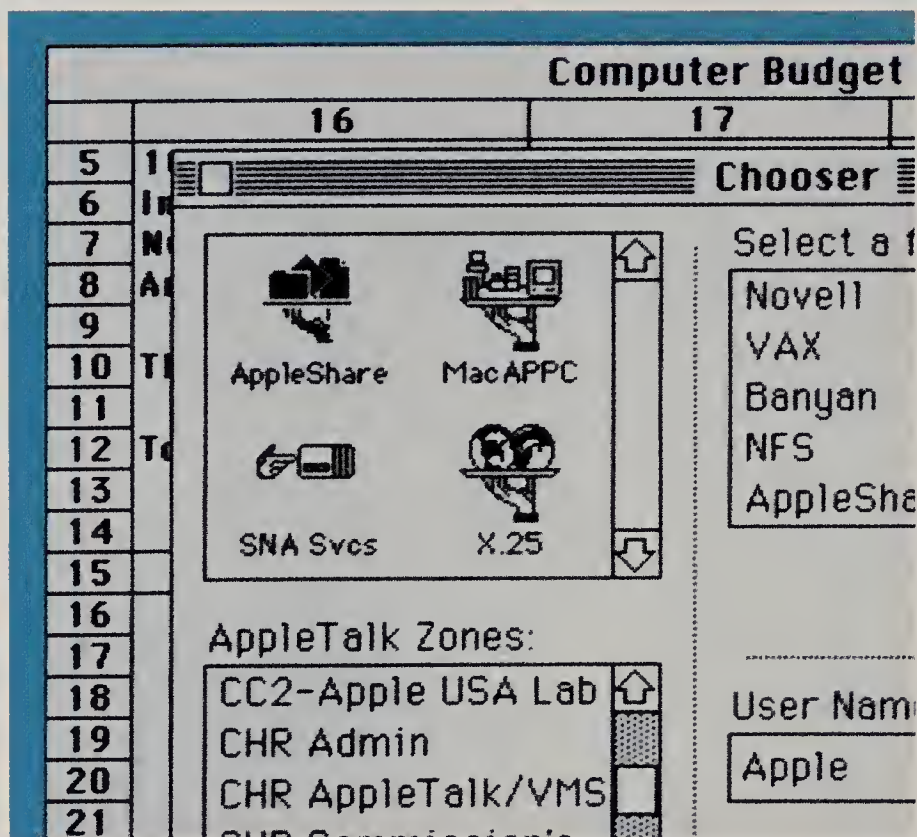
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M O R E ▶ ▶ ▶

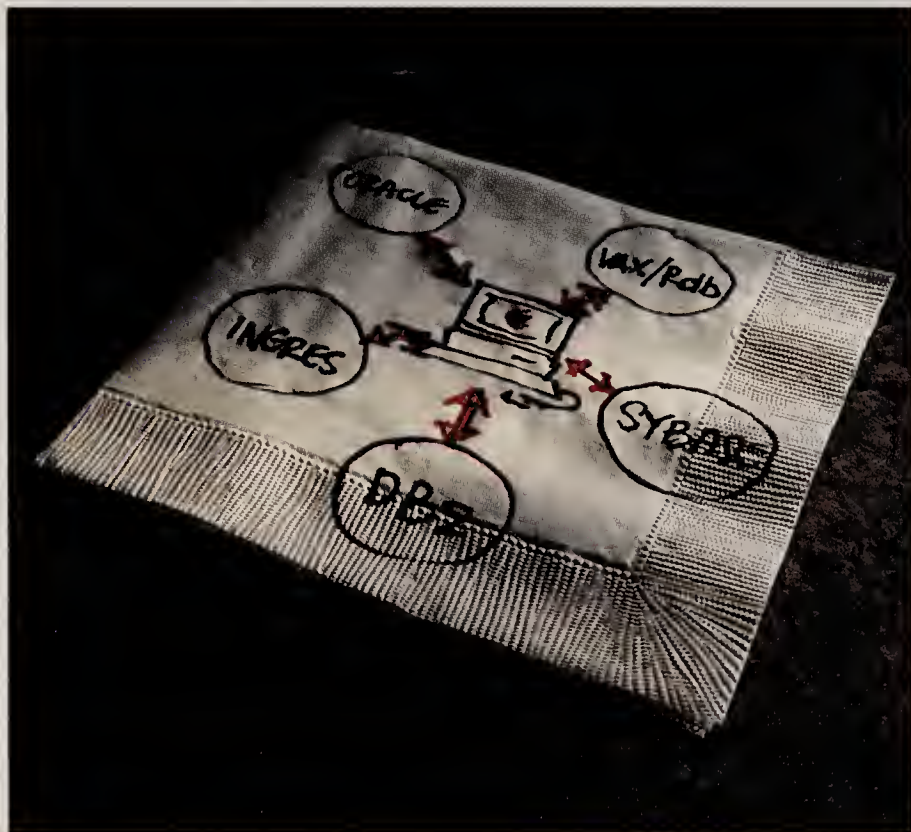
We're open



This is the Macintosh Chooser. A single point of access to a wide range of systems. The Chooser shows available network resources graphically and consistently. Just point the mouse and you're connected.



Macintosh offers an incredible range of tools for connecting with virtually any host-based environment, whether it's running SNA, TCP/IP, DECnet, or OSI.



Apple's Data Access Language (DAL) adapts popular off-the-shelf database, spreadsheet, and data analysis software to major SQL environments. So nontechnical users can easily access remote databases.



Apple A/UX® lets Macintosh run UNIX® applications plus thousands of Mac® programs. At the same time you can run X-Window and MS-DOS applications, and cut, copy, and paste between any of them. No other desktop computer can do this.

to anything.



Macintosh shares data with DOS PCs via Novell, 3Com, Banyan, and more. Macintosh reads and writes DOS files on a floppy disk. Macintosh runs DOS programs. Maybe your next DOS computer should be a Macintosh.



Information isn't much good to people who can't get to it. Macintosh sorts out the complexities of multiple computer systems and presents vast information to people at the desktop in a single, consistent way.

While diversity may make life rich and fascinating, it makes life as an IS manager something short of serene.

What is politely referred to as the "multi-vendor environment" is an amalgam of disparate hardware, incompatible operating systems, dissimilar databases, and multiple networks. Nevertheless, IS people are expected to make these all work together in perfect harmony.

But lately, a lot of people are finding the source of their solution a pleasant surprise: the Apple® Macintosh® computer.

They're finding that Macintosh comes out of the box with sophisticated networking capabilities designed right in.

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In short, Macintosh gives you the power to make information systems more valuable to the people who use them. The power to be your best®.



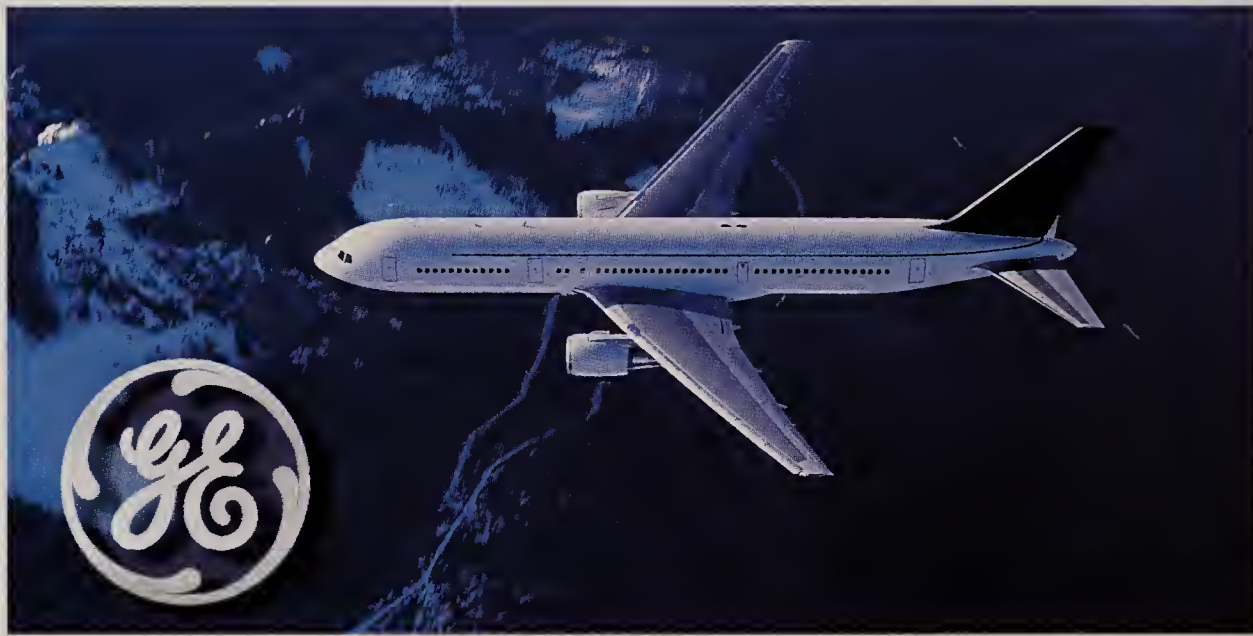
Macintosh gives people a single, simple view of the information and services that can help them do their jobs and serve your organization. See for yourself. Call 800-635-9550, ext. 501, and we'll send you a free video showing how Macintosh helps unify complex systems.



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The Year in Review

An index of all the major articles published in *CIO* magazine in 1991, including a cross-reference by article type.

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Managing end-user computing in a distributed environment requires changes in the typical IS department.

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Once viewed as an esoteric technology, artificial intelligence has emerged as an invaluable tool for developing practical business applications.

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The IEF™ can help you develop unprecedented quality, prod



"The IEF is a superior tool for implementing Information Engineering because it integrates the entire process from planning through code generation. We're deploying the IEF throughout the corporation."

David V. Evans
Vice President
Director, Information Systems
J.C. Penney



"Our On-line Banking system has been in production for more than 12 months—500,000 transactions a day—without a single code failure. And we had very few enhancements to do. Our users got what they needed the first time out."

Mark Quinlan
Senior Programmer/Analyst
Huntington National Bank



"To meet the dramatically reduced time-to-market requirements for our products, we need high-quality systems that can be changed fast. That's why we've chosen the IEF as the CASE solution for our entire organization."

John Pajak
Executive Vice President
Mass Mutual Life Insurance



"The strengths of the IEF are clear-cut. One obvious quality advantage is that application changes are made to diagrams, not code. This ensures ongoing integrity—the specification always matches the executing system."

Paul R. Hessinger
Chief Technology Officer
Computer Task Group



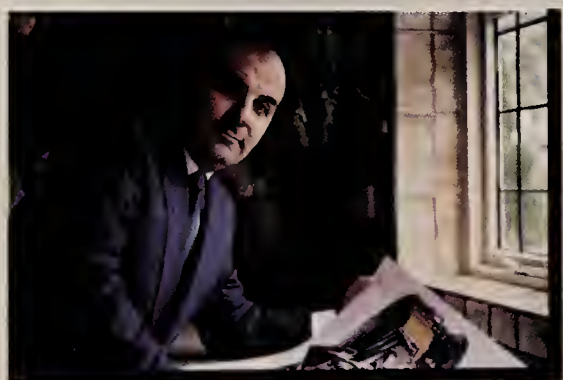
"I've seen other CASE tools fail, so I raised the bar high when we evaluated the IEF. It passed with flying colors. I could not be happier with my decision to adopt the IEF company-wide."

John F. Mott
President
AMR Travel Services



"Our users were extremely pleased when we finished our first project—a 60-transaction system—in one-half the budgeted time. We had tried interfaced CASE tools without success. IEF integration makes the difference."

Giorgio Sorani
Division Head - MIS
Lubrizol



"We are using the IEF to develop a new generation of manufacturing systems replacing over 300 existing systems. We estimate that IEF will increase our productivity by between 2-to-1 and 3-to-1 for new systems development."

Wal Brzdzynski
Head of Operations, Systems/Computing
Rolls-Royce



"The IEF offers dramatic improvements in productivity, yet it's easy to learn. One example: We trained 23 developers, including 18 new hires, and then completed a large order processing system—300 transactions—all in only 20 months."

Venkat (Vinnie) Tiruvilumala
Director, CPC/CPPC Information Systems
SONY Corporation



"Our first IEF system was completed faster, and with fewer errors, than any system I've ever seen. If I had to go back to the old ways, I'd find another job...outside the DP world. It means that much to me."

Mogens Sorensen
Chief Consultant
Nykredit (Denmark)



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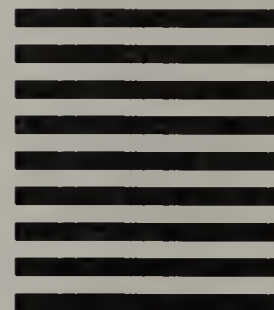
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Study shows zero code defects.

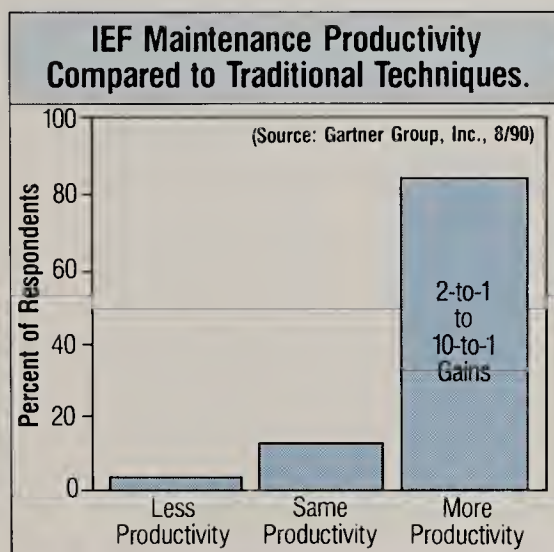
The quality of IEF-developed systems is remarkable. In recent CASE research by The Gartner Group, application developers were asked to report the number of abends they had experienced. (An "abend" is a system failure or "lock-up" caused by code defects.) IEF developers reported zero defects—not one abend had occurred in IEF-generated code.

Maintenance productivity gains of up to 10-to-1.

In this same study, developers were asked to compare IEF maintenance productivity with their former methods. Of those responding, more than 80 percent had experienced gains of from 2-to-1 to 10-to-1. (See chart.)

Specifications always match the executing application.

With the IEF, application changes are made to diagrams, not code. So, for the life of your system, specifications will always match the executing application. The Gartner Group research showed that all IEF users who reported making application changes made all changes at the diagram level.



Developers were asked to compare IEF maintenance to former methods. Of those responding, more than 80% reported productivity gains of from 2-to-1 to 10-to-1.

Mainframe applications can be developed and tested on a PC.

With our new OS/2 toolset, you can develop mainframe applications, from analysis through automatic code generation, on your PC. Then, using the IEF's TP monitor simulator and the diagram-level testing feature, you can also test these mainframe applications without ever leaving the PC.

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follow. We are committed to increased environmental independence in support of the Open Systems concept.

We are committed to standards.

IEF tools and IEF-generated code will comply with standards as they emerge. We will adhere to CUA standards and to the principles of IBM's AD/Cycle and DEC's COHESION—and we will support Open Systems environments centering around UNIX. In any environment, the COBOL, C and SQL we generate adhere closely to ANSI standards. Our presence on standards committees helps us keep abreast of ANSI and ISO developments affecting the CASE world.

Full-service support.

Of course, our technical support, consultancy, training courses, satellite seminars, and other informational assistance will continue apace. We also offer re-engineering and template services. This full-service support will remain an integral part of the IEF product.

For more information call 800-527-3500 or 214-575-4404.

Or write Texas Instruments, 6550 Chase Oaks Blvd., Plano, Texas 75023.

TEXAS 
INSTRUMENTS



When we started *CIO* magazine a little more than four years ago, much attention was focused on how information executives could create the magic formula that would bring competitive advantage to an enterprise, or whether the CIO title was too self-serving. A lot of coverage explored the issue of where in the corporate hierarchy CIOs fit or, indeed, whether they were headed for the endangered-species list.

Well, information executives have survived, albeit with some casualties. Today we are amazed when the first question the popular press asks us is how many CIOs there are—or better yet, how many Fortune 500 companies have CIOs. The

ability to apply a handy statistic to a phenomenon makes it a little less confusing. Our response to the question is generally, "Being a CIO is a state of mind."

In looking toward the new year, the events of the recent past can help put perspective on events yet to come. In the information management arena, the concerns of CIOs have changed dramatically. A few years ago, re-engineering, outsourcing, open systems, client/server and downsizing were concepts just peeping over corporate horizons. Today they are issues that cannot be ignored. The subjects of change management and justifying the costs of IT investments have also become much more intense and far-reaching.

These changes and a seemingly constant evolution of approaches to information management are a good barometer of the critical importance technology plays in the enterprise, whether the setting is a Fortune 500 company, a law-enforcement agency or New York City Off-Track Betting (the last two are featured in articles this month). And the information executive continues to be a key resource for infusing vitality into an organization.

At *CIO*, we are committed to providing a forum for new ideas. Our Strategic Outlook sections, which debuted this fall, let us explore critical topics in greater depth. And we will continue to find new ways of serving our readers better. We welcome your ideas and observations.

We look forward to the new year and wish our readers and their families a happy holiday season and good health.

Marcia Blumenthal



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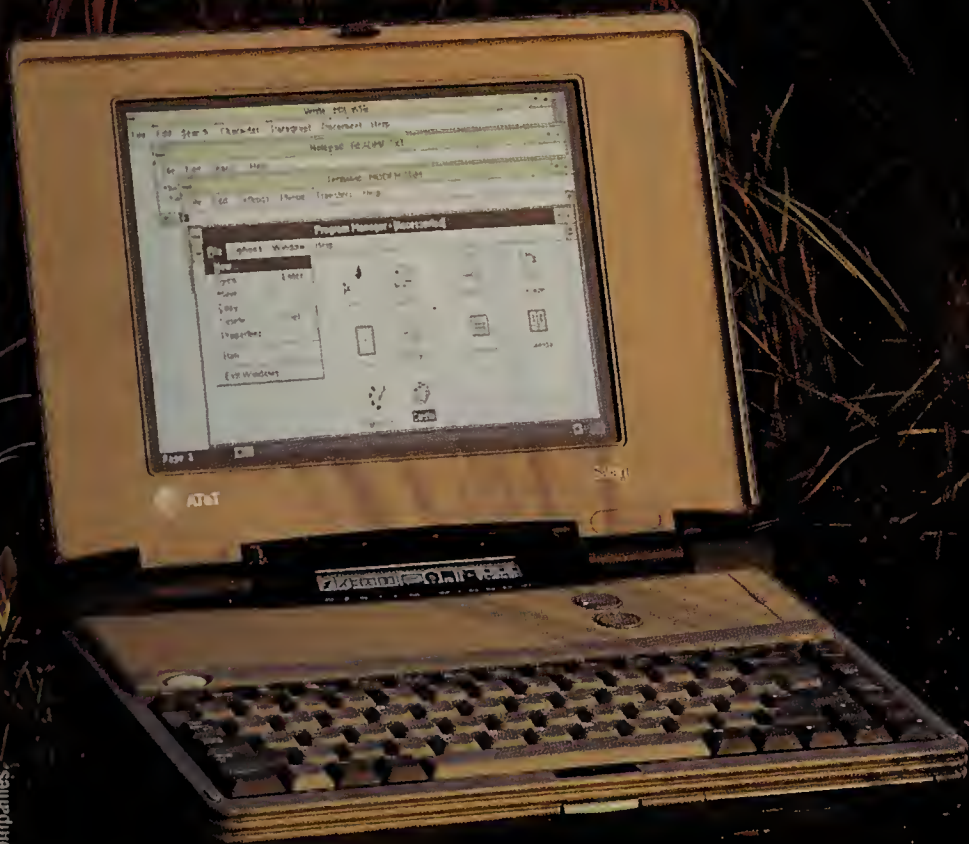
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This year was a challenging one for information technology companies—and for the publishing industry as well. Like many in IT, publishers faced difficult challenges brought about by the recession, including the need to control expenses and manage head count.

And like the IT industry, many segments of the publishing market experienced record revenue shortfalls during 1991. Some publishers were able to weather the storm by cutting head count or the frequency

of their publications. Others were less fortunate and went out of business altogether.

CIO, on the other hand, not only survived but prospered in 1991. Our revenues increased more than 27 percent over 1990. In addition, we made significant investments in our business, hiring new staff and purchasing information technology to increase the efficiency of our production process.

We also increased the frequency of *CIO* magazine from 12 to 18 issues annually and boosted circulation from 50,000 to nearly 60,000 executives. Our conference business also continued to grow, with more than 350 executives attending our most recent conference in Monterey, Calif.

As we reflect on 1991, the *CIO* staff feels extremely fortunate—and proud—to have achieved success in such uncertain times. I believe we were able to do it because of our continued, intense focus on the information needs of our target audience—IS executives—and our desire to contribute to your success.

As we approach the end of 1991, I'd like to take this opportunity to thank *CIO* readers and advertisers and our supporters throughout the IT industry for their contributions to our success. I wish all of you a safe and happy holiday season.

Wayne L. Woz

P.S. Registration is well underway for the next *CIO Perspectives* conference, "The Business of IT: Finding the Payoff," to be held March 8-11 at Loews Coronado in San Diego. To ensure your participation, please call our toll-free registration hot line at 800 366-0246 (in Massachusetts, call 508 935-4631).

Coming In CIO

Hire a Hacker

Hackers can be disruptive, annoying or downright dangerous. They may also be important members of future IS staffs.

Brave New Worlds

Five hundred years after Columbus's momentous voyage, corporations are setting out to explore new worlds. Global networks are becoming an operational necessity for businesses with their eyes on new markets, cheaper foreign labor and the dream of a never-ending business day.

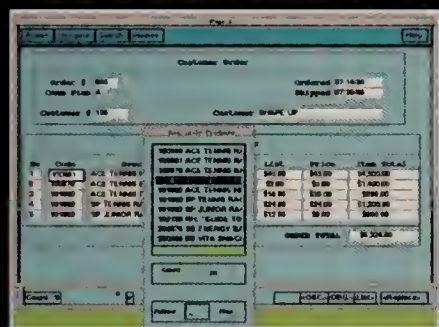
No Satisfaction

IS managers have all kinds of sophisticated metrics to gauge their performance. What they may be lacking is an internal customer-satisfaction measurement program that not only shows how they're doing, but where they must improve.

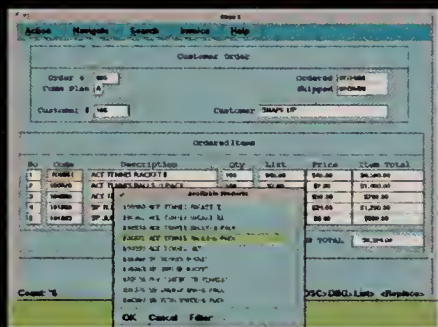
Town and Gown

Corporations and universities with IS graduate programs are forming partnerships that theoretically should benefit both sides. Are these alliances making the grade?

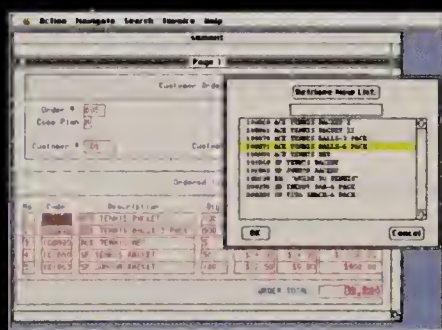
DEVELOP IT ONCE AND FOR ALL.



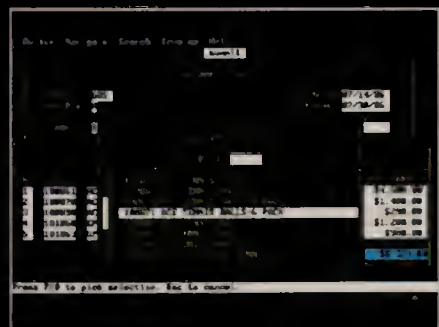
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OPEN LOOK



MACINTOSH



CHARACTER MODE



BLOCK MODE

These days, it seems almost everyone has a favorite Graphical User Interface (GUI). And most organizations also have non-graphical user interfaces running on block mode terminals, character mode terminals and PCs. Which usually means that developers must spend months rewriting each application for each incompatible system.

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An application developed with Oracle Tools automatically adapts to the native look and feel of the computer on which it runs. On Sun, IBM, DEC, HP, PCs, Macintoshes and virtually any other computer. Even on character and block mode terminals. All without changing a single line of code.

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Computers have already made good on their promise of making life easier; now they may make it longer as well. A new electronic medical journal will speed up the dissemination of information about potentially life-saving treatments to phy-

Huth said the new journal will be particularly useful in the areas of cancer, heart-disease and AIDS research.

Subscribers can access the journal with an IBM or compatible PC equipped with Windows 3.0, a modem and 2MB of RAM. An automatic alert



sicians, researchers and journalists around the world.

The Online Journal of Current Clinical Trials "will be the first journal to make immediately available findings that could save or extend the lives of critically ill patients," said Dr. Edward J. Huth, editor of the new publication. He added that *Clinical Trials* was designed "precisely because patients could benefit if research findings were made available sooner."

Clinical Trials will combine the speed of electronic scientific bulletin boards and databases with the thoroughness and authoritativeness of print. At ordinary print journals, weeks or months may elapse between the time an article is submitted and its publication; *Clinical Trials* will publish new studies within 24 hours of their acceptance. Peer review will also be conducted electronically, in order to maintain scientific standards without sacrificing the speed of online technology.

tells users when new articles are available; subscribers with special interests can be notified by fax when research is published in their areas.

Huth voiced some concern that researchers, driven by the pressure to publish or perish, might be wary of submitting papers to "what might seem like an invisible medium." The journal addresses these concerns by numbering paragraphs for easy citation and location and by providing, on request, hard-copy versions that resemble text from a typeset journal. Citations will also be included in BIOSIS, a bibliographic database used in scientific circles.

Current Clinical Trials is a joint venture of the Washington-based American Association for the Advancement of Science and the non-profit Online Computer Library Center, based in Dublin, Ohio. Slated to launch in April 1992, it carries an annual subscription fee of \$110, including unlimited online use. ■

ALL JOKING ASIDE

The *Tonight Show* execs who chose lantern-jawed Jay Leno to replace Johnny Carson cared more about the comedian's sense of humor than where he went to college. But candidates for more mundane positions would do well to leave their seltzer bottles at the door. Robert Half, founder of the personnel firm Accountemps, believes that resumes containing inappropriate humor and bloopers are self-defeating and rarely earn a second look from potential employers.



Some of the more egregious examples collected from Accountemps offices include,

- ▶ "Size of employer: 6'1".
- ▶ "Self-image: An octagon with smooth, radius angles versus a plain square with sharp corners."
- ▶ "Education: Curses in liberal arts, curses in computer science, curses in accounting."
- ▶ "Money available to loan at 14 percent."
- ▶ "Don't take the comments of my former employer too seriously, they were unappreciative beggars and slave drivers."
- ▶ "My complete mastery of the software interface was undermined by jealous peers. You can see the whole story when I sell the screenplay."
- ▶ And Half's personal favorite: "Objective: Post as communicative expert in which coordination as an administrative responsibility in pertinence to my related background in light of the relevance to the duties are coherently applied." ■

RETAIL SYSTEMS

KEEPING TRACK OF CUSTOMERS

What's the worst thing about shopping in discount stores? Now that POS scanners have speeded transactions at the check-out line, it's probably the time spent waiting in those lines—or hunting for a salesperson to help you find a particular item in the sports de-

partment. Now technology has stepped in to solve those problems too. ShopperTrak, developed by Datatec Industries of Fairfield, N.J., is a measuring and reporting technology that provides store management with minute-by-minute customer traffic information. Its ceiling-mounted

TRENDLINES

scanners use beams of infrared light to track the number of customers entering and exiting the store, approaching checkout lanes or filling a particular department.

Kmart Corp., always in the vanguard in trying out new technologies, is the first nationwide mass-merchandise retailer to install ShopperTrak. "Fast, efficient customer service is the primary reason Kmart is testing this new technology," said Joseph E. Antonini, Kmart's president and CEO.

When used in conjunction with POS data, ShopperTrak will enable retailers to compare the number of people entering the store to the number of people who actually make a purchase—known in retailing as the conversion rate. "This will allow us to do several things better," said David M. Carlson, senior vice president of Kmart's corporate information systems, "—predict customer traffic, schedule our sales associates and assess the value of specific in-store advertising. . . ."

Kmart will use the system to analyze traffic patterns in order to better design merchandise layouts and utilize existing store space; proactively open additional checkout lanes before lines build up; alert service personnel to departments with heavy shopper traffic; better forecast the stores' labor requirements, which are currently based on sales; determine the effectiveness of advertising as a method of bringing people to the store; and measure the effectiveness of in-store advertising and merchandising programs to increase sales.

If the idea of being tracked by hidden sensors seems a bit Big-Brotherish, it's not the customers that should worry—after all, they'll only benefit by getting better service. But store managers who don't use the data the system provides to improve service and increase sales might have something to answer for. ■

AVOIDING FUTURE SHOCK

Technology often undergoes revolutions of size, standards and speed, causing many a five-year business plan to become obsolete in the space of a few months. CIOs in search of a longer-term outlook that will enable them to create more stable plans may be interested in a new research service being offered by **CSC Index Inc., of Cambridge, Mass.** Designed for senior technology officers, business strategists and R&D executives, **Index Vanguard** will analyze the near- and longer-term impact of new information technologies on business and industry. The program is an **Index partnership with some of the leading technology and business figures of the day, including Apple Computer's Alan Kay, a pioneer in user-interface technology; MCC's AI maven, Douglas Lenat; communications specialist Robert Lucky of AT&T's Bell Laboratories; MIT's Media Lab founder and director, Nicholas Negroponte; Lotus Development Corp.'s David Reed, who specializes in collaborative software; and business re-engineering guru Michael Hammer. Vanguard will be sponsored by 50 companies, each of which will pay \$40,000 annually for the program's research results.**

Index and Hammer are also putting together a re-engineering research and advisory service called Quantum, whose initial sponsors include Hallmark Cards, Phillips Petroleum, Steelcase and American Airlines. ■

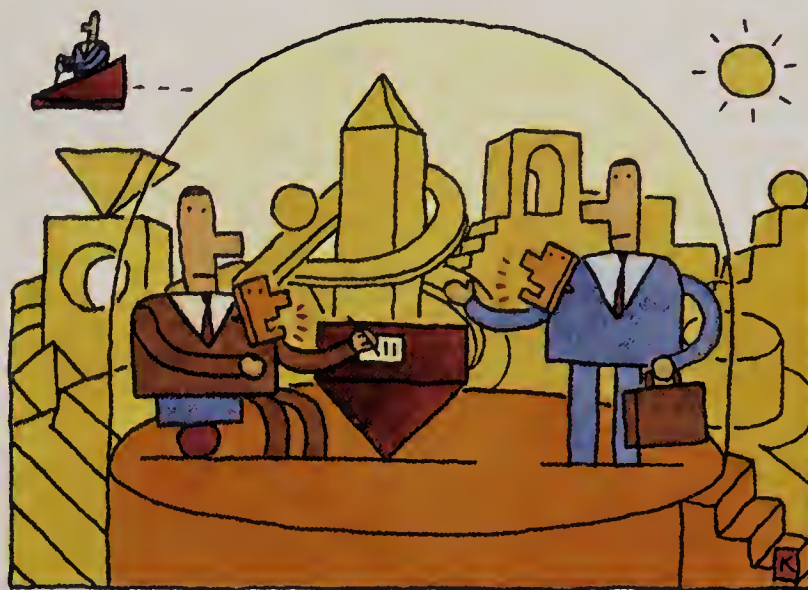
OFFICE TECHNOLOGY

FUTURISTIC PARC PLACE

It's been two decades since Alan Kay and his coconspirators founded Xerox's Palo Alto Research Center (PARC) and attempted to introduce the idea of learning-environment user interfaces to Xerox executives. The Xerox of the pre-personal computing era couldn't get its marketing mind around that concept, or around the idea that desktop computers would become only slightly less common than desktops themselves in the workplace, and so

a similar electronic board in a conference room down the hall.

The most striking thing about this office of the future is that it has no desktop PCs. Xerox has substituted pen-based electronics for keyboards and monitors. The idea is to make the technology a seamless part of the office rather than a seamless part of an intrusive PC network. The rapidly falling cost of silicon has allowed Xerox to put computer intelligence in paperlike



missed out on a chance to be the leader of the PC boom. Having seen what it lost to hesitation, today Xerox is having another go at revolution with a few innovative ideas of its own, according to a recent *New York Times* article.

"Ubiquitous computing" is the term Xerox uses to describe its futuristic office at PARC, where individuals wear badges that communicate with each other and record the wearers' movements and interactions. Staff members write information in plain English on electronic note pads and white boards—a command to search a database, for example, or a request for a specific file or organizational chart that will be shared with

objects that are familiar to office workers.

The intelligent badges—which are likely to raise concerns about privacy issues—offer to add context to a wealth of electronic information. When a PARC employee creates or uses a document in a meeting, for example, the badge that monitors his or her every move can create identifying information about the place and other attendees that will further identify the document.

One other change at PARC is that Xerox's marketing people are now in close contact with its R&D people, so that when the next computer revolution comes along, Xerox will be on the front lines. ■

TRENDLINES

LEADERSHIP SKILLS

THE WORKPLACE AS CRUCIBLE

Doctor Frankenstein used electricity to transform his patchwork of carrion limbs and organs into a living, breathing creature. Turning managers into leaders requires very different elements: variety and adversity. That is one conclusion of ongoing research conducted by the Center for Creative Leadership, a non-profit management research and education firm located in Greensboro, N.C.

"Our research [asks], 'What are the skills and perspectives that women and men can and must learn in their careers if they are to reach the higher rungs of the organization?'" explained Russell Moxley, a group director at the Center. Based upon interviews and surveys conducted throughout the 1980s, the research concludes that successful leaders are adept at balancing opposites, Moxley said. They both lead and follow; are both tough and compassionate; are at once individuals and team players. Also, top-gun managers must be flexible in thought and deed. Leaders are resourceful, they aren't paralyzed by ambiguity, and they can make good decisions based upon incomplete information.

More often than not, these

qualities are acquired through experience, Moxley added—particularly experiences that are challenging and diverse. Managers who have held a variety of jobs, labored under different kinds of bosses and faced a major obstacle that had to be surmounted are more likely to earn an office in the executive suite than managers who played it safe. This means that organizations bent upon growing creative leaders must encourage their managers to take risks—and accept the fact that failure, like success, is an important learning experience.

The Center has identified five types of assignments that tend to be developmental: a change in scope or scale that taxes a manager's current skills (such as leaping two rungs up the corporate ladder); participation on a project task force where the project is strategic to the organization and involves interaction with senior managers, and where success or failure will be evident; a "fix-it situation," such as a turnaround; moving from a line to a staff position and suddenly having to manage people by influence rather than by direct control; and "starting from scratch," such as building a new plant or a new department. ■

CAREER MOVES

JOEL A. SCHNUR, manager of information systems at Hughes Aircraft Space and Communications Group in El Segundo, Calif., has been named chairman of the board of CAM-I Inc., a not-for-profit, applied-manufacturing research consortium based in Arlington, Texas.

CHARLES C. EMERY JR. has been named associate

vice president and chief information officer for the University of Texas M.D. Anderson Cancer Center in Houston. Emery, who will be responsible for planning and implementation of the information-resource systems used by the Center's faculty and staff, was formerly vice president of information services/CIO at Samaritan Health Services in Phoenix. ■

MERRY CHRISTMAS! HERE'S YOUR VELCRO

We're now deep enough into the holiday season that

many readers must feel a growing desperation about what neat thing to buy for Aunt Til and Uncle Gus—to say nothing of the nice folks in the data center and the end users in accounting. In the spirit of service that has always driven CIO, we herewith offer some gift suggestions for last-minute shopping.

► **Security awareness posters:** Security Awareness Corp. (613 234-3977), of Ottawa, Canada, sells fetching 16-by-20-inch info-security reminders that in their tone are like the posters you may recall from grade-school corridors (wear white after dark) or the factory lunchroom (don't put your head under the drill press). SAC's posters feature stern icons of locks and spies and stress the employee's personal responsibility for maintaining good computing hygiene. Quantity discounts.

► **Ceiling Guard:** Dorlen Products (414 282-5670), of Milwaukee, thinks you ought to be worried about water. The kind that cascades down without warning



through drop-ceiling tiles and soaks your file server, derailing your ATM network, or something. Dorlen markets an early-warning water-detection system that "consists of an array of sensing panels . . . interconnected to form 'zones of protection.'" When the panels sense water, an alarm sounds. Better pray for a slow-developing leak.

► **Computer vacuum attachment kit:** Having trouble reading employees' E-mail through the layers of dust on your screen? The Eureka Co. (800 2-VACUUM), of Bloomington, Ill., maker of fine vacuum cleaners, has a mini-wand attachment-and-hosette kit that fits standard vacuum cleaners and can both clarify the view and suck the grinder crumbs up from between the keys. Only \$12.95 a kit!

► **Velcro cable wraps:** SeamTech (415 543-0170), of San Francisco, knows that with all of the short and long lengths of cable that have been loosed upon this disorderly world, many of them now lie hopelessly kinked and snarled, giving the slovenly impression that they can't be used for anything anymore. Enter Rip-Tie, SeamTech's brilliantly simple Velcro strips. Just wrap them around a freshly coiled cable and, voila!, it stays that way. Six sizes, 10 colors. Wait until Christo hears about this! ■

CTO

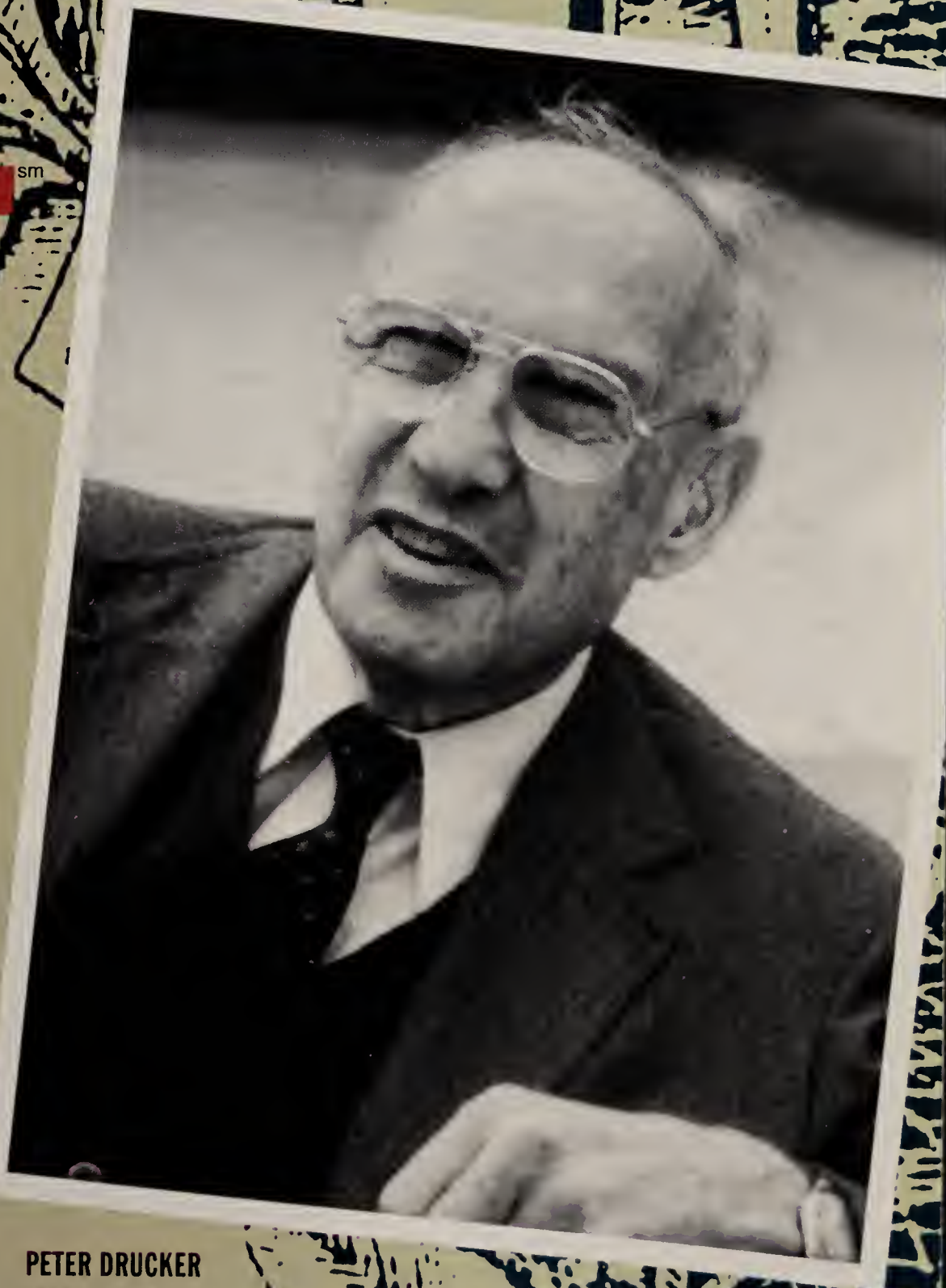
THE MAGAZINE FOR INFORMATION EXECUTIVES

Conference Announcement

THE CIO PERSPECTIVES SERIES sm

The Business of IT: Finding the Payoff

March 8–March 11, 1992
Loews Coronado Bay
San Diego, California



PETER DRUCKER

"The New Challenges:
Information Comes of Age"

If you are an executive involved in IT management, technology investments, competitive strategies or corporate business development, you will want to attend . . .

THE CIO PERSPECTIVES CONFERENCE

The Business of IT: Finding the Payoff

March 8–March 11, 1992

Loews Coronado Bay, San Diego, California

CIOs face a dilemma. Every day they come under the pressures of tight budgets, keen competition, demanding customers and quarterly results. At the same time, they must pursue the long-term goals of expanding markets, improving service and quality, increasing productivity and inspiring employees.

CIOs know that they can make their biggest contribution working toward long-term goals. But progress towards these goals is harder to measure than short-term goals, and CIOs are judged too often by short-term, fiscal results.

How can CIOs go beyond juggling and firefighting to get at the payoff? How can the return on IT investments be clearly, tangibly demonstrated to management and stakeholders?

This conference will help CIOs and other executive management choose the targets that offer the biggest payoffs, and discover better ways to convey the merits of IT, even when they resist conventional measures.

In general and breakout sessions . . .

Special interest group round tables . . .

And informal peer-to-peer gatherings . . .

An impressive array of business, technology and education leaders will discuss the payoffs of Information Technology. Our keynote speaker and the greatest management thinker of the century, Professor Peter Drucker, will address *The New*

Challenges: Information Comes of Age, and join us for a reception immediately following his presentation. Each participant will receive an autographed copy of Professor Drucker's new book, "Managing for the Future," to be published in March.

Chairmen, champions, professors and practitioners will deliver salient appraisals of the state of IT in their companies and industries. These information visionaries will tell us how they use and evaluate IT, and provide you with new strategies to succeed in your role as CIO.

A wide breadth of solutions from a select group of innovative, quality companies will be available at the conference.

Plan now to join *CIO*, distinguished speakers in rare public appearances, and outstanding technology vendors at this conference.

Companion Program

Meet the other companions at an informal coffee on Monday morning. In the afternoon, companions will visit Tijuana, gateway to Baja California, the longest peninsula on earth. An afternoon escorted tour will include

shopping on the Avenida Revolucion, Tijuana's main shopping area.

Tuesday, companions will have an opportunity to spend time in Balboa Park, San Diego's geographic and cultural hub. Balboa Park is home to the San Diego Zoo, Natural History Museum, Museum of Art, Museum of Man, Reuben H. Fleet Space Theater and Science Center, the San Diego Automotive Museum, the House of Champions and the Starlight Bowl. After the morning's guided tour of the zoo, we will provide a box lunch and there will be free time to explore Balboa Park. We will return to the hotel in time to join Peter Drucker's session.

Companions must enroll in the companion program to be included in scheduled receptions and meals.

Loews Coronado Bay

This new resort is situated on the private 16-acre peninsula of Crown Isle. Twenty minutes from San Diego airport and fifteen minutes from the Mexican border, the hotel offers a panoramic view of the marina, the Coronado Bay Bridge and the San Diego Skyline.





Jim
Wetherbe

SUNDAY, MARCH 8

Conference Registration
Reception

MONDAY, MARCH 9

Continental Breakfast
Welcome & Opening Remarks
JOSEPH L. LEVY
*President & Publisher
CIO Publishing, Inc.*
CONFERENCE MODERATOR
ALAN PALLER
*President, AUI Division
Computer Associates International*

The Return on IS:
Measuring the Intangible
JIM WETHERBE
*Director, MIS Research Center
& Professor of MIS
University of Minnesota*

IT's Contribution to America's
Competitiveness
LESTER M. ALBERTHAL, JR.
Chairman, President & CEO, EDS

Competing in
Transnational Markets
DAVID H. STARR
*Vice President & Program Manager
OMNI, Mastercard International*

Demonstrating the Value of IT to
Business Management

Luncheon

Networking & Affinity Groups
*Various small group, facilitator-led
discussions and recreation*

Reception

Dinner

TUESDAY, MARCH 10

Continental Breakfast

Driving Innovation &
Entrepreneurship through IT
FRED ROSEN
CEO, Ticketmaster

Getting IT on the CEO's
Strategic Agenda
PATRICIA M. WALLINGTON
*Vice President & CIO, Information
Management, Xerox Corporation*

IT's Role in Building Market Share
JACK COOPER
*Vice President & CIO
Joseph E. Seagram & Sons*

The CIO as
Senior Business Partner
NIGEL A. L. BROOKS
*Vice President, Worldwide Technology
Management, American Express Travel
Related Services Company, Inc.*

Luncheon

Competitors in Partnership:
A Beautiful Relationship?
STEVE RUEGNITZ
*Head of Data Center Operations
EJV Partners, LP*

BREAK-OUT SESSIONS

The CASE Bill of Rights
LAWRENCE L. HOWARD
*Vice President, Sales & Marketing
Advanced Information Management
Division, IEF, Texas Instruments*

No Strings Attached with Mobile
Data Communications
JACK LIVINGSTON
CIO, National Car Rental System Inc.

CIO/Booz Allen & Hamilton
1992 CEO/CIO Survey
RAY LANE
*Senior Vice President
Booz Allen & Hamilton*

STEVE PERKINS
*Vice President, Information Systems
Group, Booz Allen & Hamilton*

**Will CIOs Survive in a
Distributed World?**

FRANK GENS
*Vice President, Technology Assessment
Technology Investment Strategies
Corporation*

The New Challenges:
Information Comes of Age
PETER F. DRUCKER
*Clarke Professor of Social Science &
Management, Claremont Graduate School*

Reception
with Professor Drucker

WEDNESDAY, MARCH 11

Continental Breakfast

The Myth of IT as a
Strategic Weapon
MAX HOPPER
*Senior Vice President, Information
Systems, American Airlines*

BREAK-OUT SESSIONS

A Road Map to Open Systems
LAURA CORY
*Director, Network Systems Group
Hewlett Packard*

PCs: The Payoff Gets Bigger
GRAHAM C. BEACHUM, JR.
*Vice President & General Manager
Tandon North America*

The Challenge of Achieving
World Class Manufacturing
through IT
DR. JONATHAN GOLOVIN
*Principal Founder & Chairman of the
Board, Consilium, Inc.*

Strategic Telecommunications
Networks: Highway to Profit
ED DALY
*Senior Vice President
Central Engineering, Racal-Datacom*

A Glimpse of the Future: IT Then
PORTIA ISAACSON
President, Dream Machine Inc.

Summary

C O R P O R A T E H O S T S

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**COMPUTER
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Software superior by design.

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**TEXAS
INSTRUMENTS**



CIO PERSPECTIVES

The Business of IT: Finding the Payoff

Loews Coronado Bay, San Diego, California
Sunday, March 8-Wednesday, March 11, 1992

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____ MAIL STOP _____

CITY _____ STATE _____ ZIP CODE _____

() ()
PHONE _____ FAX _____

FIRST NAME FOR BADGE _____

NAME OF COMPANION (IF ATTENDING) _____

SIGNATURE _____

Additional Company Enrollments

The following people from my company also plan to attend:

NAME _____

TITLE _____

COMPANION _____

NAME _____

TITLE _____

COMPANION _____

PAYMENT INFORMATION

☐ Check Enclosed ☐ Bill Company

☐ Purchase Order # _____

☐ Credit Card # _____

☐ AMEX ☐ VISA ☐ MC Exp. Date _____

FAX, CALL OR MAIL YOUR ENROLLMENT TO

Fax to 508/872-0618; call us at 800/366-0246; or mail to
CIO Magazine, 492 Old Connecticut Path, Framingham,
MA 01701, Attn: Executive Programs

ENROLLMENT FEES

Individual: \$895* (\$995 after 1/15/92)

Group: \$850* (\$950 after 1/15/92; 3 or more from the same company enrolling at the same time.) All enrollment fees must be paid in advance of the meeting. Fee includes conference materials and scheduled food and beverage. Transportation and hotel are your responsibility.

*Replies must be received by January 15th.

MILITARY/GOVERNMENT

Individual: \$1,295* (\$1,395 after 1/15/92)

Group: \$1250* (\$1,350 after 1/15/92; 3 or more from the same department enrolling at the same time.)

Hotel is included in conference rate. CIO will make your reservations.

*Replies must be received by January 15th.

HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Loews Coronado Bay. We urge you to make your reservations early by calling the hotel at 619/424-4000. Be sure to identify yourself as part of the CIO Conference to receive the conference rate. Hotel reservations/cancellations and charges are your responsibility.

CANCELLATION

You may cancel your enrollment up to 30 days prior to the conference without penalty. Cancellation between 29 and 3 days prior will receive full credit toward attendance at one of the next two conferences. If you do not attend or cancel within 3 days of the conference, no refund or credit will be given. You may send a substitute in your place.

COMPANION PROGRAM

\$165. Companions must be enrolled in this program to attend any conference functions. (Includes all scheduled food and beverage functions, tour to San Diego Zoo and Balboa Park, and Americas Cup trials or trip to Tijuana)

TRANSPORTATION

American Airlines is the official conference carrier. Depending on your originating city, you can qualify for up to a 45% discount *without* requiring a Saturday night stay-over. Call 800/433-1790 and reference **STAR file #SO7324S**.

NETWORKING/AFFINITY GROUPS

Please indicate your level of interest in the following Monday afternoon activities:

☐ Small group breakout sessions

Topic _____

☐ Golf ☐ Tennis ☐ Tijuana

☐ San Diego Zoo ☐ Americas Cup Trials

☐ Other _____

YOU NEED PEN COMPUTING

(BUT YOU MAY NOT KNOW IT)

You may not even know what pen computing is or what it can do for your organization. Experts* predict that *Fortune 1000* companies collectively will be saving hundreds of millions of dollars in data-entry costs alone through pen computing by 1995, not to mention improvements in customer service, field sales, inventory reporting, medical record keeping, and claims adjusting, to name a few applications.

To better understand how to apply pen computing to the challenges facing your organization, come to the first *Pen Computer Users Conference* for prospective users. Managers who are using pen computing today in organizations like yours will discuss how they gained the acceptance of upper management and end-users, and developed software. The major pen computer systems available today will be demonstrated.

The Pen Computer Users Conference has been guided by **The National Advisory Council on Pen Computing**, whose members will speak at the conference.

- ▶ Portia Isaacson, Ph.D., Dream Machine
- ▶ Andrew Seybold, Dataquest
- ▶ Bill Lempesis, *The Lempesis Report/Pen Vision News*
- ▶ Tim Bjarin, Creative Strategies Research International
- ▶ Peter Tiege, Infocorp
- ▶ Bruce Stephen, International Data Corporation

Other industry experts will speak including John Rizzo of Momena, Pradeep Singh of Microsoft, Chuck Ennis of TelePad, Jeff Hawkins of GRiD, David Fox of Nestor, and Harry Gierhart of OCR Systems.

A total of 16 sessions will be held on key topics including:

- ▶ Gaining User Acceptance
- ▶ Pen Computing's Return on Investment
- ▶ Demonstrating Advantages to Management
- ▶ Handwriting Recognition Applications
- ▶ Pen-Top Computers
- ▶ Wireless Communication via Handheld Pen Systems
- ▶ Palmtop Computers and Pens

Register now or call for more information on pen computing. Be sure to ask about the conference transcript available on interactive diskette. (800) 729-3660.

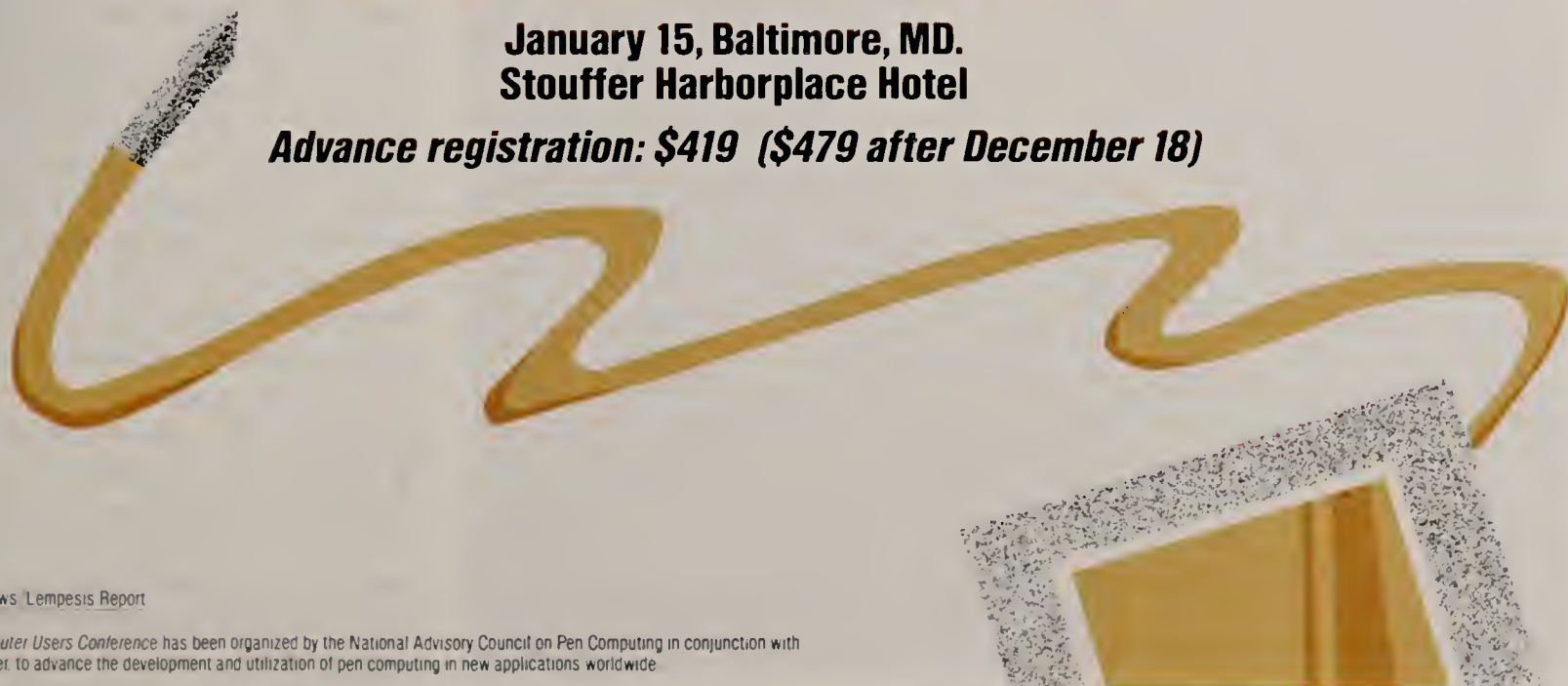
PEN COMPUTER USERS CONFERENCE

**January 15, Baltimore, MD.
Stouffer Harborplace Hotel**

Advance registration: \$419 (\$479 after December 18)

*Pen Vision News / Lempesis Report

The Pen Computer Users Conference has been organized by the National Advisory Council on Pen Computing in conjunction with Ogilvy & Mather to advance the development and utilization of pen computing in new applications worldwide.



End (User) Games

Managing end-user computing in a distributed environment requires changes in the typical IS department

BY DAVID O'BRIEN

Distributed computing is proving to be a boon to end users in all types of organizations. But managing information in such an environment calls for a change in the skill mix, role and operations of the typical IS department.

Why not leave end users to manage their own departmental computing? There are a number of reasons. Denied the benefit of traditional IS operating controls, end users are not likely to pass audits of their IS operations with any great consistency. And end-user departments with only one or two computing people might not be able to maintain the integrity of data, manage concurrent transactions in departmental databases, or maintain physical, access and recovery security. Users would have to plan, purchase and manage the implementation of future hardware/software migrations that are compatible with the rest of the network. Most users would probably be unable to grant appropriate levels and areas of

database access to other end users or to maintain appropriate documentation of end-user applications so others could operate the programs. These many functions, now under the auspices of the IS group, must be addressed in distributed environments as well.

Obviously IS is still crucial to the success of any organization's computing efforts. But there are two major roadblocks to IS's response to the development of distributed computing. First, the IS department's mainframe mind-set inhibits change. In the mainframe world, success is measured by minimized downtime, reduced number of aborts, and bytes transformed into volumes of timely and accurate reports in a production environment. The mainframe world is not known for its ability to deal with changing requirements, yet end users live in a world where the variables to be analyzed change daily.

Limited budget resources are an obvious second roadblock. Like any other department in corporate America today, the typical IS department is under extreme pressure to either hold expenditures flat or reduce them. Moreover, before IS can spend \$1 on new and expanding aspects of end-user computing, it must take care of core operations. The mainframes whose costs have been spread out over a number of years have to be depreciated, the Cobol programs have to be maintained, and staff has to be hired and fired. Only then can IS turn its attention—and its pocketbook—elsewhere.

Given the evolutionary changes that have occurred in Fortune 500 computing, the problems that have resulted because of them and the roadblocks that prevent IS from meeting end users' needs, what can we do to meet the management



challenges facing us today?

First, don't fight this evolutionary process in distributed computing. The technology is here, the demand is high, and the end-user community is installing it now. Begin to visualize a changing role for IS in this new world, and start to develop a computing road map that contains reasonable IS controls and guidelines.

Second, continue to improve the core IS activities. The mainframe industry may have undergone major shake-ups in the last five years, but mainframes will be around for a long time. Partnerships with end users that employ joint application design (JAD) techniques will reduce costs, improve quality and foster a better understanding of the business within IS. Strategic JAD-type efforts will pay off when we use them to differentiate the end users' business information from their competitors', to re-engineer intra- and interdepartmental administrative workflows, and to form similar partnerships with customers and suppliers.

Third, despite budgetary constraints, resources can be reallocated. Mainframe depreciation goes down with time, and mainframe projects that consumed huge programming resources come to an end. The trick is to plan for and then gradually implement the new resources as other budgetary demands decrease.

Fourth, get rid of any defensive or cloistering behavior patterns that may have built up within IS during the pre-distributed computing phase. Respond to those political turf issues with an aggressive service attitude toward end users.

Once these issues have been addressed, you need to take a responsive, customer-service approach by surveying the end-user computing community in your company. Exactly what kinds of applications are they running? What are their needs? What risks are there in the computing practices they are employing? You'll probably find that 80 percent of your problems are coming from 20 percent of your end users.

IS must be responsible for safeguarding and ensuring the effective

use of your company's data. Although IS staff do not need to perform all the computing activities in your business, IS should establish the standards and guidelines. Consider the following examples of end-user issues and suggested requirements.

■ All hardware connected to the network should be approved by and installed under the guidance of IS and allow for enterprisewide connectivity. A business can no more afford com-

*Left alone, end users
will not be able to
maintain the quality
and security of your
company's
information.*

puters that don't talk to one another than it can afford telephones that don't communicate. The equipment must be standardized.

■ All software connected to the network should be approved by IS. Bulletin-board-type programs should never be allowed, because of the risk of computer viruses. Network software packages are cheaper than stand-alone versions and increase interdepartmental communication.

■ All business-critical or intergroup databases should conform to the enterprise data dictionary, security, backup and operational requirements. All recurrent database queries should be approved by an IS professional for format and data-dictionary correctness.

■ Documentation of critical end-user applications should use predetermined formats and be on file in both IS's record-storage area and the end-user department. This documentation should tie into a database so IS can know which end users they need to communicate with when they make changes in mainframe programs that end users access.

■ Security standards for physical backup and password protection should be stipulated by IS. File-server backups can be easily coordinated by IS on a time schedule across the network. IS should create and issue random passwords to all individuals and file servers every six months. With a centrally administered electronic-mail system, IS can keep track of all candidates for password additions, changes or deletions. Database access rights should be coordinated by the IS database administrator.

Information, whether it's distributed or centralized on a mainframe, must be managed. Each functional area needs to develop information-management skills commensurate with the state of its distributed computing activities. With input from IS, major functional areas should develop information-manager positions.

These information managers should coordinate and prioritize end-user business information plans, identify and develop re-engineering projects, assure end-user compliance with IS standards and guidelines, represent their functional area on IS user councils that recommend IS resource allocation, monitor training requirements and the quality of end-user computing within their functional area, and be a liaison with IS on system projects.

Standards and guideline requirements should be set by IS with end-user participation. Testing for compliance among end users should be part of the annual IS audit.

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David O'Brien is senior systems analyst with Honeywell Residential Division in Minneapolis.

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TAKING A BYTE OUT OF CRIME

There is something about the conjunction of technology and law enforcement to make nearly everyone queasy. Civil libertarians worry that privacy and rights could be abridged by the government's misuse of powerful new technologies—for surveillance purposes, for example. Many in law enforcement simply can't envision a day when gritty, experienced vice cops will tap away at personal computers on their desks. To them, that is like imagining Dirty Harry fussing with a floral arrangement.

Like it or not, technology is slowly seeping into police squad rooms, district attorneys' offices and courtrooms. A few of these new technologies, such as DNA "fingerprinting," are potentially revolutionary—and controversial. But most of what is new in law-enforcement technology is commonplace in other fields. PCs, management systems, relational databases and imaging are part of the web of business tools that civilians now take for granted. Law-enforcement IT proponents argue that these old technological troopers will make it easier to apprehend and convict lawbreakers—if police officers and courts will accept them and the public will approve and fund them.

Justice is big business in America. The nation spends over \$60 billion annually to catch, convict and jail criminals. But then, the nation has a lot of criminals. According to a 1989 Justice Department study, on any given day, one out of every 46 adult Americans is in jail or on probation or parole.

The front line of law enforcement is the cop—the local officer in a squad car, the state police detective, the federal agent—employed by nearly 17,000 police agencies nationwide. And cops buy more technology than prosecutors or the courts do. The way the pie is sliced among

From the cops
to the courts, law-
enforcement officials
are using IT to put
criminals behind bars

BY THOMAS KIELY

criminal-justice agencies, the police "traditionally" receive stouter capital expenditure budgets, explained Kelly Bacon, executive assistant to the Portland, Ore., District Attorney. They have to purchase guns and cars and computer-aided dispatch (CAD) systems.

CAD systems were the latest and greatest thing in police technology during the 1980s. Computers capture incoming service calls ("there is a robbery in progress," or "a cat is stuck in a tree"), and automatically

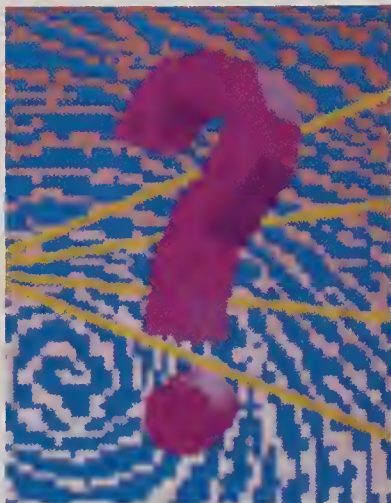
record such pertinent details as the caller's name and address. Now departments are adding flourishes to the system. In Alliance, Neb., for instance, the CAD system is linked to an electronic Rolodex of local businesses, so that officers can quickly discover whom to summon if a call comes in from a particular store. It is also linked to tactical information about certain addresses—that call about a cat may seem harmless, but it comes from a house where a known (and armed) drug user lives.

Dispatchers communicate with patrolling officers through police radios or over mobile data terminals that will display information routed directly from a CAD system. In Fremont, Calif., and a few other communities, the communicator of choice is a laptop computer and a radio modem. Fremont officers use the laptops to directly access state and federal databases, bypassing busy radio dispatchers and speeding response. For instance, it takes only eight seconds to learn if a particular vehicle has been listed as stolen.

In the future, cops equipped with laptops may be able to quickly retrieve records—or even images—from central files. California is piloting a project that will allow Highway Patrol officers to ticket drivers simply by swiping a magnetic strip on the driver's license through a



ILLUSTRATION BY STEPHEN ELSTON



California is piloting a project that will allow Highway Patrol officers to ticket drivers simply by swiping a magnetic strip on the driver's license through a reader in the squad car.

reader in the squad car. On the East Coast, the Baltimore County Police Department hopes to eventually use laptops or mobile terminals to provide officers on a crime scene access to a new expert system the department has developed. The system matches details of a residential burglary case against the modus operandi of about 700 burglary offenders and uses if/then rules to generate a list of suspects.

But law enforcement has its own technology hurdles. Cops tend to be wary of change, and the geeky stuff can seem foolishly exotic to them—or Pandora's boxes of hidden agendas. San Francisco is saddled with a patrol-scheduling system that middle managers won't use, apparently because they find it clunky and Big-Brotherish. And Baltimore County detectives initially shunned the burglary expert system—even though they were key to developing the system's rules. "Seasoned detectives were saying, 'I don't need this,'" recalled Captain Jeff Caslin.

Marie Rosen, publisher of *Law Enforcement News*, a police newspaper issued by John Jay College of Criminal Justice in New York, sees irony in the development of these new applications. Increasingly, police managers want their officers more involved in the community—to resurrect the kind of direct interaction between police and the public that existed in the days when cops walked a beat. But it was technology (the radio-dispatch car) that claimed the beat cop in the years following World War II. Technologies like CAD and laptop communicators continue to keep officers tied to the car. "It's an unresolved issue," Rosen observed.

So is technology management. IT can hinder new trends in police strategy, asserts Malcolm K. Sparrow, an expert on police management at Harvard University's John F. Kennedy School of Government. Police executives "are often bamboozled by new technology," Sparrow said. "Systems have been installed without a clear idea of what effect this will have on their style of policing."

Well managed, technology can be

an important tool for progressive police managers. But the wrong decision about systems can "scupper your best intentions," Sparrow argued. CAD systems can stir up a hornet's nest of managerial issues; other systems may enshrine outdated policing methods, give power to the wrong people or support inappropriate performance measures, he explained. It is therefore important that police managers not abdicate technology decisions to technologists. "These are matters for strategists and managers," he said.

Off the street, technology plays an even larger role—in police laboratories and investigative units. Today IT helps investigators to search thousands of records in order to match bullets to guns, analyze the flow of money within drug rings, render "drawings" of suspects based on eyewitness accounts, and "age" pictures of missing children. The Secret Service is looking at an automated handwriting-analysis system developed in Germany, and the FBI uses an expert system to help track down serial killers. But the two most important new investigative boons are DNA analysis (see related story, page 26) and automated fingerprint identification systems (AFIS).

Meanwhile, fingerprints have gone digital. Live-scan fingerprint technology electronically captures images of prints that can be stored, indexed or transmitted quickly and easily. Other systems are speeding up the process of comparing fingerprints found at a crime scene or taken from a suspect against a repository of inked prints. The U.S. Border Patrol is itching to hook into a California AFIS as a way to identify smugglers, criminals on the lam, or repeat border crossers among the illegal aliens they stop.

But AFIS is only one component of tomorrow's integrated record system. According to Art Rehkemper, special agent in charge of the Forensic Services Division of the U.S. Secret Service, law-enforcement researchers are studying computerized voice-identification systems. In the future, voice records and fingerprints

of criminals may be linked to central files containing text information, such as arrest records and wanted notices.

Facial-recognition systems will take these advances even further. Theoretically, information systems can store and index (by a variety of measurements) photographs of people's faces. Measurements may include the distance between the eyes, the distance of the eyes from the nose, and so on. The Border Patrol and other federal agencies are particularly interested in this type of system. Surveillance photographs could be included in the image databases. Then, conceivably, a video camera on the front end of an intelligent recognition system installed at

an airport could scan newly arrived international passengers and sound an alarm when it spotted a smuggler, terrorist or spy.

That may scare the willies out of citizens who envision how this technology can be abused by government. But before the knees start knocking, there's more: The FBI has begun to overhaul the National Crime Identification Center database. (This is a system shared by states and localities but managed by the FBI.) Today, police query the NCIC for information on wanted or missing people and stolen property; they can also go through the NCIC to the FBI's database of 14 million individuals with criminal histories. By the mid-1990s,



Today IT helps investigators to search thousands of records in order to match bullets to guns, analyze the flow of money within drug rings, render "drawings" of suspects based on eyewitness accounts, and "age" pictures of missing children.

Tracking Violent Criminals

.....
The FBI is using expert systems to stalk serial killers, bombers and rapists

A growing database of unsolved homicides and a handful of expert systems are helping investigators at the National Center for the Analysis of Violent Crime (NCAVC), headquartered at the FBI Academy in Quantico, Va., to track down serial killers and other repeat perpetrators of violent crimes (including rape, arson and child molestation).

The Violent Criminal Apprehension Program (VICAP), which contains detailed reports on about 6,000 cases, is stored on a mainframe, and can analyze details of each case and suggest linkages among cases.

Investigators can query the system directly—to request a list of all cases involving certain characteristics, for example—or compare and contrast each new case entered into VICAP against all other cases and produce a list of the 10 that most closely resemble the new one. "Some of them are right on the money," said David Icove, violent crime program manager. Not long ago, this application linked a killer arrested in Texas to three other unsolved homicides outside the state.

Another application, called Profiler, is used to develop probable characteristics of killers and rapists. Based on over 250 rules, Profiler will work on cases in VICAP or, in an interactive mode, query analysts for additional details about the crime scene. A third system is used to help law-enforcement agents across the nation track down bombers and arsonists. These systems, according to Icove, are experimental, and an investment for the future.

Obviously, the more cases VICAP contains, the more effective it will be. "I'm sure we will do much better when we have 15,000 cases rather than 6,000."

—T. Kiely



By the mid-1990s, the National Crime Identification Center system will contain new databases (such as files on parolees), have access to the Canadian equivalent to NCIC and incorporate relational searching, expert systems and images.

the NCIC system will contain new databases (such as files on parolees), have access to the Canadian equivalent to NCIC and incorporate relational searching, expert systems and images. Eventually, officers equipped with fingerprint scanners and laptop computers in their cars will be able to transmit a suspect's prints to the NCIC and quickly get access to a photograph and a rap sheet.

Cop technology also helps prosecutors to build stronger cases in court. And in some sense, "investigative computing" (as Portland's Bacon refers to it) is a shared resource. Bacon observed that relational and graphical applications are particularly helpful in drug-conspiracy cases, where police and prosecutors (and later, juries) must sort through disparate pieces of information and

try to "visualize" relationships.

In general, however, prosecutors are just beginning to grab hold of technology. IT budgets are leaner in this sector of the justice system, and there is a paucity of applications. In Virginia Beach, Va., Commonwealth Attorney Robert Humphreys is finishing development of an automated case-tracking system—and he has already had inquiries from other prosecutors.

"A lot of DAs' offices, a lot of criminal-justice offices, are without any computer system," observed Ben Shapiro, president of the National Association for Justice Information Systems, an organization that encourages the use of technology within criminal justice. "They're still asking, 'What do I need?'"

Marion County, Ind., is an exception. There, the prosecutor's office

Tapping into the Gene Pool

The analysis of genetic material is helping cops place suspects at the scene of the crime

DNA analysis is probably the most powerful analytical tool for law enforcement since fingerprint [identification]," said Robert Gleason, section chief in the FBI's Laboratory Division. The technology relies on the fact that individuals can be identified by their genetic makeup in much the same way they can be identified by their fingerprints. With DNA analysis, biological traces—such as blood, hair, skin and semen—left at a crime scene could lead police investigators ineluctably to a suspect.

But the technology is controversial. There are various techniques for analyzing genetic material in a forensic lab, and all of them have their limitations. Larry Kobilinsky, professor of biology and immunology at John Jay College of Criminal Justice in New York, explained that some techniques will identify dissimilar DNA material or offer statistics on the chances of making a match. Critics of the method question the integrity of the databases used to generate the statistics.

Other techniques read "bands" of DNA material but can only work with certain kinds and quantities of biological material. Still, the FBI has conducted nearly 3,000 DNA examinations since December 1988 (mostly on behalf of state and local agencies) and has over 1,000 other cases currently in the works. DNA fingerprints have been used in court, too. "The future in this is sequencing DNA," said Kobilinsky. "That is [where one] isolates a particular gene . . . to compare suspects. It will be very detailed."

—T. Kiely

and the courts are linked to a network that is the official court record for the county. When a charge is lodged against a defendant, prosecutors can add to the system all data relevant to their cases, including the charges, information about bail, and so on. They can then track the case through the courts. The police are linked to the system, too, enabling attorneys to electronically share case information, such as the address of a witness. (Public defenders have limited access to the system.) Because the data is automated, prosecutors and the courts can slice it up into statistical information—such as recidivism rates, data on bail jumpers and crime statistics.

The electronic links between courts and law offices will increase, predicts Larry P. Webster, director of technical services for the National Center for State Courts. While some courts have experimented with the faxing of documents, they quickly realized that this, in effect, transferred document-printing costs from law firms to courts. But PCs and modems let lawyers file court documents and check the status of cases more efficiently.

For the courts, technology promises to be the Wyatt Earp of document management, the only hombre that can clean up paper chaos. Courts are eyeing imaging technology—one California municipality is already storing traffic citations on optical disk—and more advanced data-transcription technologies, Webster noted. Real-time translators under development will automatically store the stenographer's keystrokes in what passes for English in the legal profession—and even display the text on television screens in the courtroom.

But eventually courts may find that video is their technology of choice. Courts in Utah and elsewhere now conduct video arraignments. Prisoners don't have to leave the jail to face the judge, and the government saves money on prisoner transportation costs. The next step will be prerecorded trials. Judges and lawyers can proceed through a trial that is re-

corded on video in the absence of a jury. Twelve honest souls will watch a distilled version of the trial (objections, motions and pauses will be edited out) and render judgment—and perhaps work through three or four trials a day.

Appellate judges with video access to ongoing trials could deliver real-time decisions on appeals simply by playing back "instant replays" of the motions—thereby streamlining court dockets. With integrated data, judges on the bench could consult their workstations to look at the docket, see an image of a filed paper or view video of a sentencing. Down the longer road, judges and juries might "visit" a crime scene using virtual-reality technology.

After the capture and the conviction comes the correctional phase of the criminal-justice system, and technology is making inroads here as well. The National Institute of Corrections and NASA, for example, are working together to find technologies that can be transferred from the space program to the prison. On the agenda: using nuclear magnetic-resonance scanners to detect concealed weapons or drugs, automating rapid-eye test equipment (developed for the Shuttle program) to detect drug use, and an automated smart tutor that will help prisoners to develop much-needed reading and life skills.

Technology is also being used to address the problem of prison overcrowding. The nation's prison population doubled in the 1980s, and many states' prisons are bursting at the seams. The newest additions to the corrections-technology palette are various electronic house-arrest systems. In Charlestown, W.Va., probation officers use a call-in monitoring system to keep track of house-bound offenders. The system has cut probation officers' caseloads by 15 percent. Other communities use electronic collars and ankle communicators.

But even with all the technology now aimed at capturing, convicting and jailing crooks, crime rates continue to rise. Perhaps technologists need to turn their attention to uncovering the roots of crime. [CIC]



Appellate judges with video access to ongoing trials could deliver real-time decisions on appeals simply by playing back "instant replays" of the motions—thereby streamlining court dockets.

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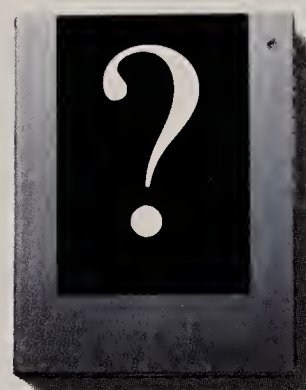
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UP AND RUNNING

All bets were on when New York's recession-pinched Off-Track Betting agency set about reinventing itself through technology

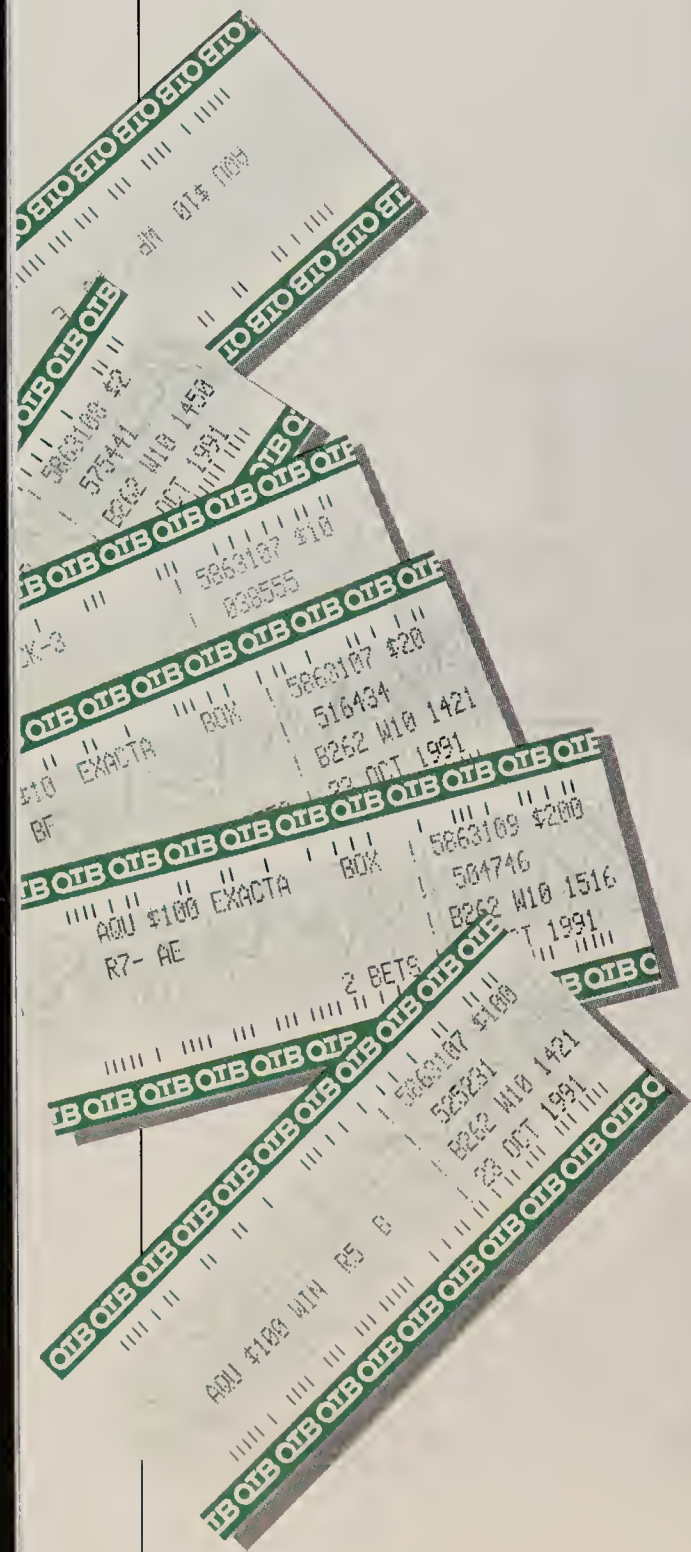
BY
DAVID
FREEDMAN

YOU PAYS YOUR MONEY AND you takes your chances.

That's not news to customers of New York City Off-Track Betting, the chain of 98 city-run "parlors" that lets horse-racing fans lay down bets at racetrack odds without having to make the pilgrimage to the turf itself. But the same couldn't be said of OTB's management. Throughout most of the 1980s, the conservative and bureaucratic organization did little to reverse the trends of rising costs and the erosion of the horse-race gambling market.

Information technology in particular languished at the \$218 million agency. Old, unreliable systems were hindering business, and little was done to take advantage of the vast stores of data accumulating as mountains of paper.

No one was more frustrated with the situation than George Steinman, senior director of management sciences and operations information officer at the agency. Having joined OTB four years after its creation in 1970, Steinman watched in envy as the financial-services companies sur-





GEORGE STEINMAN: "With a more efficient system, we'd be able to pull more customers through and spend more time talking to each customer."

rounding OTB's midtown Manhattan headquarters leapt into the age of PCs and strategic information technology. Steinman pushed OTB management to follow suit, to little avail. "I tried to change people's thinking," said Steinman, "but things kept moving slowly."

Then, in 1990, recently elected New York Mayor David Dinkens promoted Hazel Dukes, a longtime OTB manager and president of the NAACP, to be president of the agency. Dukes was all too familiar with the problems OTB faced, and she was determined to turn things around quickly. One of her first moves was to offer an executive vice presidency to David Vaughn, whom Dukes knew from his positions as special-events coordinator for the United Negro

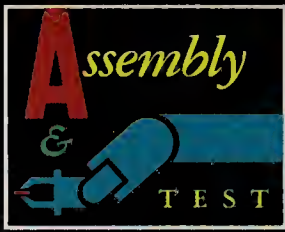
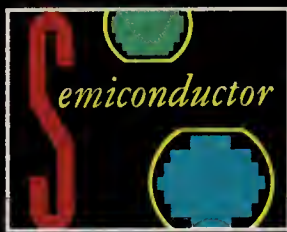
College Fund and, later, for pharmaceutical manufacturer Pfizer. Vaughn had impressed her as a no-nonsense manager who made things happen.

"[Dukes] wanted to turn this operation into a corporation, and she knew we didn't have the systems in place to do it," explained Vaughn. Vaughn jumped at the opportunity—and not just because he liked the idea of making big changes and happened to be comfortable with technology. "I spent a lot of my early years at Pimlico, and every other racetrack in Maryland," he said. "Horse racing is in my blood."

It wasn't long before Vaughn and Steinman recognized that they had similar ideas. Though they make an unlikely duo—Steinman is a fast-talking, acerbic techie and Vaughn is a

smooth, nattily dressed executive—they quickly joined forces to shake up OTB from its systems on out. The result: The agency is well along in its transformation from a sleepy city bureaucracy to a model for a fleet-footed, opportunistic service organization. And for the first time, IT is playing a lead role.

Sitting in his large office overlooking Broadway, Vaughn recalled what he saw when he first joined OTB. "The racing industry was in a downward trend, and we weren't doing much to bring in new bettors," he said. That key problem was compounded by a suffering economy and the attendant city budget cutbacks, demands by aggressive unions, and growing charges from a number of communities that OTB parlors were



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"We weren't able to quickly and reliably take people's money and keep track of it, and we weren't taking advantage of the information we had.... We were operating with a 1970s data-processing mentality."

—David Vaughn

unwelcome presences, he noted. On top of everything else, OTB's information systems were a mess. "We weren't able to quickly and reliably take people's money and keep track of it, and we weren't taking advantage of the information we had," said Vaughn. "Everyone and his brother knows that PCs are the way to go these days, but we were operating with a 1970s data-processing mentality."

Vaughn quickly got the word out to employees that they had better start thinking in terms of big changes, but all everyone seemed to do was point out more problems. That cut against his grain.

"As far as I'm concerned, problems are stepping stones," he said. "They're opportunities to prove yourself. All I want to hear from people is how to solve them."

The one person who kept knocking on his door with solutions was Steinman. "Things had to change radically," said Steinman. "OTB is like a bank with lots of small branches. But we didn't have any of the technology that banks use. We needed new systems, and we needed to start moving to PCs both in the branches and at the main office."

Vaughn agreed, and he and Stein-



DAVID VAUGHN: "We needed to maintain the integrity of a two-dollar bet."

man got to work. The first thing they did was take a look at the agency's betting system. The betting system is at the core of OTB's operations, handling over a million transactions a day and serving much like a retail business's point-of-sale system—except that in addition to keeping track of the money taken in, the betting system has to calculate payouts based on the odds transmitted from the racetrack's system. But OTB's existing system was cranky, often keeping customers waiting while it processed the information. Even worse, the system occasionally lost track of entire batches of wagers. "First and foremost, we needed to maintain the integrity of a two-dollar

bet," said Vaughn. "But we wanted to do a lot more than that, too."

A new betting system was already under development, but when Vaughn asked for details, he was told that the system was being designed and implemented almost entirely by a third party, per order of the previous management. "When I heard that," recalled Vaughn, "I said, 'Who? What? You mean to tell me we're not even in charge of our most important system?' That's not the way I like to do things. I always want to make sure it's my own people that are on the line."

Vaughn quickly ordered that OTB start playing a larger role in the new system's development, and he per-

sonally oversaw the incorporation of a broader architecture that would allow the fast implementation of new types of betting schemes. In addition, he made sure the new system would be faster and more reliable.

"With a more efficient system, we'd be able to pull more customers through and spend more time talking to each customer," said Steinman. "But more importantly, David made sure that everybody involved in the development saw the big picture,

he went right to work on the solution. "I asked myself, 'If I were David, what's the toughest and most useful thing I could ask for from me?'" said Steinman. "I decided that would be to provide a set of PC files that could be used to run operations, and that would provide an immediate feel for the strengths and weaknesses of the business."

In a few days, Vaughn had the first files at his fingertips—and it didn't take him long to make use of them.

When it came time to bargain with the unions, Vaughn and Steinman sat hunched over a PC for hours at a time, examining the revenue and cost impacts of virtually every negotiating scenario they could think of.

that they understood how this system would support our future plans."

The new system would also do a better job of tracking information about wagers and payouts from all the branches. Unfortunately, OTB hadn't been doing that much with the data it already had, except to churn out page after page of detailed reports that didn't help decision-making. Steinman didn't bother to point the problem out to Vaughn; instead,

He started by examining the hours that the company's 1,500 people worked in the 98 branches. After playing around with the numbers, Vaughn quickly reached the conclusion that by changing the opening and closing hours of several of the branches, he could extend the prime money-making hours while actually cutting enough overtime costs to avoid a 200-person layoff demanded by the financially squeezed city. But when Vaughn gave the orders, he met with some skepticism. "Everybody said, 'Are you sure this is right?'" he recalled. "I said that I knew what went into that data, and it was right. What's all this technology for if we can't make judgments based on it?"

Having set the example, Vaughn turned Steinman loose on the organization with orders to help everyone solve their problems with technology. Managers concerned with the potential for theft, fraud and error at the betting windows—OTB takes in nearly a billion dollars a year in cash wagers, of which about 76 percent must be paid out to winning bets—

TECHNICAL PROFILE

New York City Off-Track Betting is a city-run agency that operates 98 betting parlors in which customers place wagers on horse races run in New York State. Last year the agency took in \$921 million in wager revenues, of which \$703 million was paid out to winning tickets, for after-payout gross revenues of \$218 million. OTB has recently implemented a new central betting system and is in the process of instituting a culture that is more dependent on PC-data-driven decision-making.

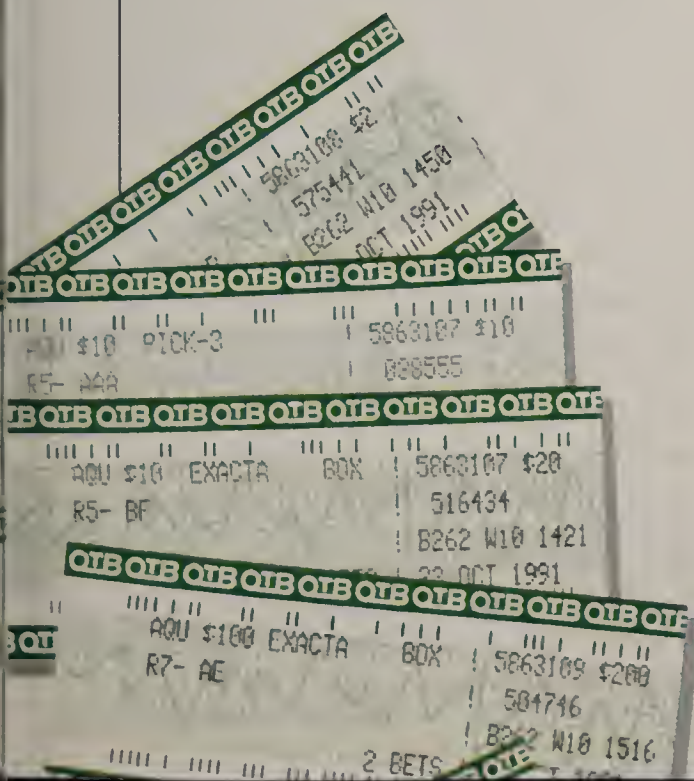
Large and Mid-range Systems: OTB operates an IBM 4381 mainframe running VM/CMS and maintains a 4341 as a backup processor. Wager transaction processing is handled by custom-designed workstations at each branch, Digital Equipment Corp. microVax minicomputers at headquarters, and an IBM 9300 minicomputer operated by a facilities-management vendor.

Software: Most of OTB's software is custom-designed.

End-user Computing: About 100 IBM-compatible PCs and 70 terminals are used at headquarters, with another 900 custom-designed PCs operating at branch teller windows.

turned to Steinman for better ways to break down cash flow to spot problems. The people in charge of supplies for the branches moved to a paperless, optical-disk-based ordering system that cut down on shortages and overstock and now saves the organization thousands of dollars annually in paper costs alone. Managers choosing branch locations were given files comparing a location's real-estate costs with its projected revenues, allowing them to pick spots that would provide the most bang for the buck.

When it came time to bargain with the unions, Vaughn and Steinman sat hunched over a PC for hours at a time, examining the revenue and cost impacts of virtually every negotiating scenario they could think of. "By



knowing what every demand cost, we knew how hard to fight," said Steinman. "We were able to approach things in a logical decision tree, instead of guessing."

Having successfully wielded data in the fight to cut costs, Vaughn became determined to apply information technology to a more difficult goal: increasing revenues. "Fewer people are betting," said Vaughn. "But why? It's not as if the horses are dying off. We wanted to find ways to bring new bettors in."

One key step, he decided, was upgrading the atmosphere and convenience of the branches. Many of the

parlors got 10-foot video screens into which are piped high-quality images of races from around the state. New automatic betting machines were put in, so that customers could quickly punch up their own wagers without having to wait in a teller line. And to defuse community resistance, branches began doing tie-in promotions with other local businesses. Now, revenues are up by as much as 20 percent in some parlors.

But that's just the beginning. Vaughn is taking advantage of the flexibility of the new betting system to spice up the betting products. Customers can now place simulta-

neous wagers on races at different tracks, for example. OTB can create special promotions that feature a group of races, in the fashion of racing's famed Triple Crown, offering odds based solely on OTB customer bets instead of track bets. Vaughn also has his eye on races in other parts of the country, regulation permitting, and he even hopes to expand OTB beyond horse racing. "If sports betting becomes legalized, we'll be

Win, Place and Show

.....
Three IT-related steps that helped New York's
OTB gain the winner's circle

New York City Off-Track Betting focused on information technology as a means for turning around declining revenues and rising costs. Most managers might think their organizations don't have much in common with a government-run gambling business, but in fact, OTB's efforts could apply to many service organizations. Here are the three main IT-related steps OTB took to effect a change:

Cutting costs. By observing how cash intake varies over the course of the day and according to the number of employees per branch, OTB was able to shift branch hours and employee work schedules to cut overtime costs while keeping branches better-staffed during peak hours. In addition, the agency instituted a paperless supply-ordering system, analyzed the relationship between profitability and location to cut real-estate costs, and more carefully monitored cash intake to limit fraud and errors. OTB also carried out projections of various work-routine scenarios to better equip itself for union negotiations.

Improving service. OTB determined that the inefficiency of its core betting system was creating a bottleneck in its branches and depriving the agency of needed data, reliability and flexibility. One problem was that the agency had always farmed out design and development of its software. By playing a more active role in a new system's design and implementation, the agency sped up its bet-taking operations and armed itself with better data. In addition, OTB now pipes live video of many featured races into giant-screen TVs at its branches, and it has installed machines that allow customers to punch up their own bets.

Introducing new products. The new betting system allows OTB to promote new types of wagers, including betting on multiple races and betting by phone. The agency is also prepared to expand its race coverage nationwide and incorporate sports betting, if permitted to do so. —D. Freedman

Vaughn is taking advantage of the flexibility of the new betting system to spice up the betting products. Customers can now place simultaneous wagers on races at different tracks, for example.

ready," he said. Whatever it is they're betting on, customers will soon be able to place their wagers over a touch-tone phone tied directly into the betting system.

Vaughn and Steinman know that IT isn't the solution to everything. Steinman points out, for example, that heavy bettors prefer to deal with a human teller rather than a machine. "Sometimes they need a minute or two to talk out their bets," he explained. And Vaughn notes that he personally employs one low-tech strategy. "I do a lot of praying for good weather," he said. It seems that a little sunshine does more for a gambler's willingness to spend than does the most impressive betting system. 

David Freedman is a freelance writer based in Brookline, Mass.



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LINES OF DEFENSE

Today's
help desks
do more
than just
answer the
telephone
when trouble
calls

BY ALICE LaPLANTE

Help desks have long played a significant role in corporate IS departments. Although most started as stop-gap measures—put quickly into place to answer end-user questions on a newly installed system or to offload tasks from a burdened programming staff—many help desks have grown into strategic partners within data processing.

Because help-desk personnel are often the closest IS workers to the actual end users, they are quick to sense when a new system is not being accepted or has significant quality problems. They are also the ideal employees to track the performance of hardware, software and vendor services, since they are in daily contact with what goes wrong in the enterprise systems environment.

Help desks can be situated in a number of different areas within IS, according to Fred Schrecengost, director of the Help Desk Institute, an international organization in Colorado Springs, Colo., dedicated to the needs of help-desk professionals. Many are located in end-user computing departments; others are located in networking centers, application-development areas, or even the quality-control function of IS.



SHIRLEY HOSP: *"I'm on the line. We are a very visible operation, and we like it that way."*

"Early help desks were little more than a place for users to go when they were missing a page out of a report," said Schrecengost. "They were not terribly sophisticated." However, as technology has proliferated, the role of the help desk has become more active, often taking on technology training and installation as well as merely answering the telephone when something goes wrong.

BankAmerica's help desk is run by BankAmerica Systems Engineering in Concord, Calif., and supports over 54,000 internal BankAmerica employees coast-to-coast. Vice President Ed Hawthorne, who ran the help desk until this past summer, believes that the biggest value a help desk can offer an organization is to solve problems on the spot—rather than pass them along to other sys-

tems personnel.

"Every time we have to hand over a problem to someone else, we are not happy," said Hawthorne, who is proud of his staff's record of resolving 90 percent of all problems in the initial call.

This is no mean feat, given that the BankAmerica help desk gets over 100,000 calls a month and is responsible for frontline technical support

PHOTO BY ANDY GOODWIN



ED HAWTHORNE: "The help desk can be a gold mine to an organization."

for all BankAmerica PC end users, as well as for monitoring the bank's network of automatic teller machines in California and Nevada. But according to Hawthorne, to aim for less than this is to cripple the potential of what a help desk can offer an organization.

If not managed properly, help desks can foster dependency rather than promote user self-sufficiency, according to Naomi Karten, an IS management consultant based in Randolph, Mass., and author of the book *Mind Your Business: Strategies for Managing End User Computing*. "Human nature is such that if it's easier to call and get an answer than to think about something, that's what people will do," she said.

Another potential risk of help desks is that they are apt to solve symptoms and not problems. This is why tracking of help-desk problems is key—to analyze trends and spot problems before they get out of hand.

According to an annual survey of its members conducted by the Help

Desk Institute, over 86 percent of all help desks do formal performance statistics, and many help-desk managers consider this to be one of the most critical aspects of their jobs.

Baxter Healthcare Corp., in McGaw Park, Ill. (see related story, Page 41), implemented a new tracking system called Netmaster in April. Every person who uses the network-support line has been assigned a four-digit code number, with a corresponding user profile contained in the system. Whenever a user calls in, the network-support employee keys in the number and the user profile is called up. "When I get a call from a certain person," said Shirley Hosp, manager of network support, "I know her name is Ann, that she is an IMS user with a certain configuration of hardware, [and that she] called twice last week with a printer problem." Hosp said this helps to isolate actual mechanical problems from operator error.

Baxter also uses an IBM package called Infoman, which compiles statis-

tics on calls that are reviewed daily by Hosp and her staff in order to catch such problems as poor training, improperly designed systems or even unequal distribution of user manuals. "We know how many calls are re-

***E**ncouraging informal interaction between help-desk employees and the people they serve is a good idea. "It's great for people to put a face to a voice they've talked to for years."*

—Ed Hawthorne

ceived, how many are abandoned and how many callers hung up without being helped," said Hosp. This allows her to monitor the performance of her staff and ensure she is scheduling shifts appropriately.

Patricia Rizziello, manager of the help desk at publisher McGraw-Hill Inc. in Hightstown, N.J., keeps a close eye on her statistics to make sure her help desk is operating efficiently. "If you are managing the help desk properly, the volume of calls should be going down," said Rizziello. "If your calls have doubled, there had better be a good reason. Have you added a new system or additional users? Has computer usage doubled? If not, something is wrong."

But some help-desk managers believe that numbers don't tell the whole story. "Regardless of what your statistics say, you need to talk to the end users directly," said BankAmerica's Hawthorne. He started out doing a biannual survey to measure user satisfaction, but found that

people had forgotten their help-desk experiences by the time the survey was scheduled. He has since implemented a weekly survey asking users to rate the helpfulness and knowledge level of help-desk staff and the satisfaction they provided. "We get an extremely high rating from our surveys, and also some very good suggestions for improvements," Hawthorne said.

New technology tools are making help-desk operations easier. Voice-response units—where callers can push digits on their touch-tone phones in order to solve routine problems without actually talking to anyone—have helped enormously in reducing the volume of help-desk calls.

For example, BankAmerica users used to request reprints of reports by talking to a help-desk employee, who would take down the relevant information over the phone and manually request the reprint from the appropriate data center. "We were literally adding no value to this operation; we were just taking down information and passing it on to someone else," said Hawthorne. Now users simply call in and enter the appropriate information into the voice-response unit, which passes the data on to the host system and does the reprints automatically.

Also becoming more common are expert systems and graphically based hypertext-like diagnostic screens that prompt help-desk employees to ask relevant questions of callers and suggest possible solutions.

US WEST Communications Inc., in Boulder, Colo., is beginning to implement expert-system technology throughout its organization and has had several highly successful help-desk applications, according to Ted Smith, director of knowledge-based systems. One help desk, which supports approximately 1,000 field technicians on a system that predicts network overload, illustrates a particularly positive experience, he said.

"Although we had a number of workers taking calls on this particular help desk, we only had one expert

who could answer the more complicated questions," said Smith. As a result, he said, that expert was forced to be on call 24 hours a day, seven days a week, and had been unable to take a vacation or even a weekend off.

US WEST used an expert-system tool by the Carnegie Group, a soft-

ware development firm in Pittsburgh, to develop the system, effectively taking the expertise of this one person and putting it into the software. "We essentially sat down with the expert and built different scenarios of what kinds of problems were likely to occur and how to resolve them," Smith said.

Expanding Its Charter

Baxter's help desk was formed to ease users over the automation hump. Now it's an essential part of the corporation's networking operations.

The help desk at Baxter Healthcare Corp., in McGaw Park, Ill., illustrates how far such an organization can evolve. Called the network-support operation—because it is currently responsible for installing and supporting all equipment hooked to Baxter's corporate network—the help desk was founded 17 years ago by Shirley Hosp, manager of network support, who still heads the operation.

Hosp formed the group when Baxter was in the process of converting its remote distribution centers from keypunch machines to dumb terminals. "As I went from site to site installing the new hardware, we realized we needed someone back in headquarters answering user questions," said Hosp. Eventually she hired a second person to work with her, and then another. The network-support department's size grew along with its scope of influence; it now has primary responsibility for managing all Baxter maintenance vendors—including tracking the quality of the service and negotiating contracts—and employs 45 people.

Baxter's network-support staff averages approximately 30,000 calls a month and operates from 5:30

a.m. to 9 p.m., with the staff alternately taking "beeper responsibility" for nights and weekends. Hosp said her staff is able to solve over 85 percent of all help-desk problems on the initial call.

Taking on the management of maintenance vendors was a natural step in the group's evolution. "Because we do the front-end troubleshooting, we're the best people to keep tabs on how our maintenance vendors are doing," said Hosp. The department meets with vendors at least every other week to go over service calls and response times. "We hold them pretty much to the gun."

Because the network-support department is the first to get problem calls—and can eliminate many of them without having to call in the maintenance vendor—Baxter gets a discount on its contracts, said Hosp. She estimates that her department saves Baxter approximately \$200,000 annually in maintenance contracts. "Instead of our vendors getting calls from 160 different sites," she said, "they only get calls from us, and only after we've checked the problem out ourselves."

—A. LaPlante



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The expert system was put onto a Macintosh using a Hypercard interface that prompts help-desk employees to question callers about what is happening in the field. The system then suggests possible solutions. Any problems that the expert system can't solve are red-tagged and passed on to the expert. According to Smith, the help desk is now able to answer 80 percent of the calls in the initial conversation. "Our expert no longer has to work weekends and can focus on the really complex problems," he said.

Help-desk managers say that by far the most overwhelming challenges they face are in the personnel arena. Because of the nature of the job—which is, after all, listening to problems and complaints for hours at a time—burnout is common.

"Callers can be very negative," said McGraw-Hill's Rizziello. "When someone is cursing you because the computer has gone down for the third time that day, it can wear on you."

To help stave off burnout, Rizziello has put her staff on three-day-a-week, 12-hour shifts. "They love it, because it gives them time to pursue other things, such as higher education or family activities," she said.

Hawthorne believes in giving his workers positive feedback. "Treat them nicely, give them lots of kudos," he said. "People aren't calling you to say, 'good morning'—they are calling because there is a problem." Hawthorne places a big emphasis on morale-building exercises, such as departmental picnics and seminars, that get his employees away from their desks. He also believes that encouraging informal interaction between help-desk employees and the people they serve is a good idea. Especially successful have been open houses and tours hosted by the help desk that encourage end users to visit the department. "It's great for people to put a face to a voice they've talked to for years."

Having a career path upwards is also critical for help-desk employees,



FRED SCHRECENGOST: "Early help desks were little more than a place for users to go when they were missing a page out of a report. They were not terribly sophisticated."

Hawthorne believes. He has been successful at moving help-desk workers who are ready to explore alternative career options into other technical positions within the bank. In effect, the help desk is the entry point for non-technical employees interested in a technical career. As a

**Without
management behind
them, help desks fail.
They don't get
funding, they don't get
relevant information,
and they are cut out of
the strategic IS
decision loop."**

—Fred Schrecengost

result, the help desk at BankAmerica acts like a "feeder unit" to the technology center of the bank, Hawthorne said.

Baxter's Hosp attributes the low turnover in her department (employees serve an average of six years) to her emphasis on getting staff mem-

bers away from their telephones whenever possible. "We get them into classes and allow them to travel as much as possible," she said. "I also give everyone performance-management objectives that allow them to get off the phone an hour or two a week and work on some personal goals."

A well-run help desk can be easily cost-justified in terms of savings on computer downtime, maintenance charges and employee productivity, experts agree. However, as computers become an increasingly integral part of corporate America's daily business activity, demands on help desks will intensify.

The key to a successful operation is upper-management support—preferably from the highest levels of IS. "Without management behind them, help desks fail," said the Help Desk Institute's Schrecengost. "They don't get funding, they don't get relevant information, and they are cut out of the strategic IS decision loop."

Hosp reports directly to the vice president of operations of Baxter. "I'm on the line," she said. "We are a very visible operation, and we like it that way."

As Hawthorne put it, "The help desk can be a gold mine to an organization, but you have to be proactive." 

Alice LaPlante is a freelance writer based in Palo Alto, Calif.

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The Year in Review

An index of all major articles published in CIO in 1991,
including a cross-reference by article type

Articles are numbered in sequence from the first issue of CIO. (See previous Decembers' issues for guides to stories published prior to January 1991.) To help readers find articles of interest, we've added a cross-reference of categories at the end of the listing. For example, readers interested in industry overviews would look up the articles numbered 333, 352, 373-382, 402 and 428.

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- 307. "The Forest for the Trees"** (Page 24)—how a geographic information system is helping Boise Cascade manage its timber resources. By David Freedman
- 308. "Are We There Yet?"** (Page 34)—Coopers & Lybrand's second annual survey of non-IS senior executives. By David Freedman
- 309. "The Once and Future CIO"** (Page 44)—future prospects of the strategic role of CIOs. By Thomas Kiely
- 310. "Getting a Line on Telemarketing"** (Page 60)—automated telemarketing is helping companies boost sales and improve productivity. By Leslie Goff
- 311. "Who's the Expert?"** (Page 20)—an Insights column on designing, maintaining and managing expert systems. By David Blanchard
- 312. "Open Windows for EIS"** (Page 70)—a State of the Art column on the graphical interface of the new Windows version. By David Friend
- 313. "IS Gets Physical"** (Page 80)—a Human Factors column on giving the IS function a thorough checkup. By N. Dean Meyer
- 314. "Conference Call"** (Page 84)—What application could your company not live without?



FEBRUARY 1991

- 315. "Stalking the King-Sized System"** (Page 24)—how Citicorp has tamed the large system. By Thomas Kiely
- 316. "Retrenching to Cope with Recession"** (Page 36)—Some CIOs may find themselves exempt from the onslaught of budget cuts. By David Freedman
- 317. "A Partner is Born"** (Page 50)—Business analysts illuminate ways of using IT to achieve business goals. By Paul Konstadt
- 318. "From Big Bang to Big IT"** (Page 62)—Nobel Prize winner Arno Penzias says information technology is where the action is. By Paul Konstadt
- 319. "An Ounce of Prevention"** (Page 20)—an Insights column on preventing the spread of computer viruses. By Richard G. Lefkon
- 320. "In Good Voice"** (Page 70)—a State of the Art column on new voice-processing technologies. By William W. Creitz
- 321. "Putting Training on Track"** (Page 76)—a Human Factors column on implementing new and better training programs. By Ely S. Lurin
- 322. "Conference Call"** (Page 84)—What are the cost benefits and trade-offs of outsourcing?

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- 323. "Increasing the Yield"** (Page 23)—how to put a lean, mean software-development process in place.
- 324. "Next-Generation Retailing"** (Page 28)—a profile of how JCPenney holds the line on software costs. By Meghan O'Leary
- 325. "Controlling Costs"** (Page 42)—how CIOs can keep software costs from getting out of control. By Thomas Kiely

326. "Mastering Methodology"

(Page 54)—new application design could put a stop to unwieldy, maintenance-intensive software. By Mickey Williamson

327. "Leveraging Tools" (Page 62)—CASE tools are solving some problems, but users still wait for the full-life-cycle solution. By David Freedman

328. "Managing Maintenance" (Page 74)—Tools can help keep the software-maintenance burden from running amok. By Kathleen Melymuka

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335. "The Greening of the Bottom Line" (Page 54)—businesses are using IT to deal with managing toxic substances. By Meghan O'Leary

336. "To Each Its Own" (Page 66)—cooperative processing lets organizations compute more efficiently. By Kathleen Melymuka

337. "Refining the Strategic Process" (Page 22)—an Insights column on how CIOs can help align the strategic planning process. By John B. Bishop

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339. "Oops . . . My Luck Ran Out" (Page 78)—a First Person column featuring the further adventures of Tripp Strange. By Tripp Strange

340. "New Age of Venture Capital" (Page 80)—a State of the Art column on technology investment. By Don Gooding

341. "Conference Call" (Page 88)—What are line managers in your organization doing to become more IT savvy? How are you helping them?

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342. "Sharing the Wealth" (Page 39)—an introduction to the special issue on distributed computing. By Allan E. Alter

343. "The Distributed Melting Pot" (Page 44)—looking at the options of distributed computing. By Thomas Kiely



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344. "The Shape of the Peg" (Page 54)—the smart way to design a distributed computing structure. By Meghan O'Leary

345. "Law and Disorder" (Page 64)—distributed computing is often accompanied by new problems of control. By Paul Konstadt

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347. "The ABCs of TCP/IP (and FDDI and SNMP . . .)" (Page 84)—understanding the crucial yet baffling communications standards. By Allan E. Alter

348. "Getting the Message" (Page 22)—an Insights column on the power of voice mail. By Gus Bender

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351. "Conference Call" (Page 116)—What do telecom managers want to tell management?

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360. "A Floppy for the Teacher" (Page 104)—a State of the Art column on interactive video systems. By Rockley L. Miller

361. "Brass Tacks" (Page 110)—a Viewpoints column about the software policies of major vendors. By Allan E. Alter

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364. "Home Sweet Office" (Page 30)—telecommuting offers benefits to employers and employees alike. By Meghan O'Leary

365. "The Myth of Strategic IS" (Page 42)—successful IT systems owe a lot to an organization's underlying business strength. By David Freedman

366. "Starting Over" (Page 50)—Silo Inc.'s journey from outsourcing to distributed computing. By Kathleen Melymuka

367. "Thinking of Downsizing?" (Page 20)—an Insights column on which systems will and won't benefit from downsizing. By Theodore P. Klein

368. "Learning from Experience" (Page 58)—a Human Factors column on mentoring. By Stewart L. Stokes Jr.

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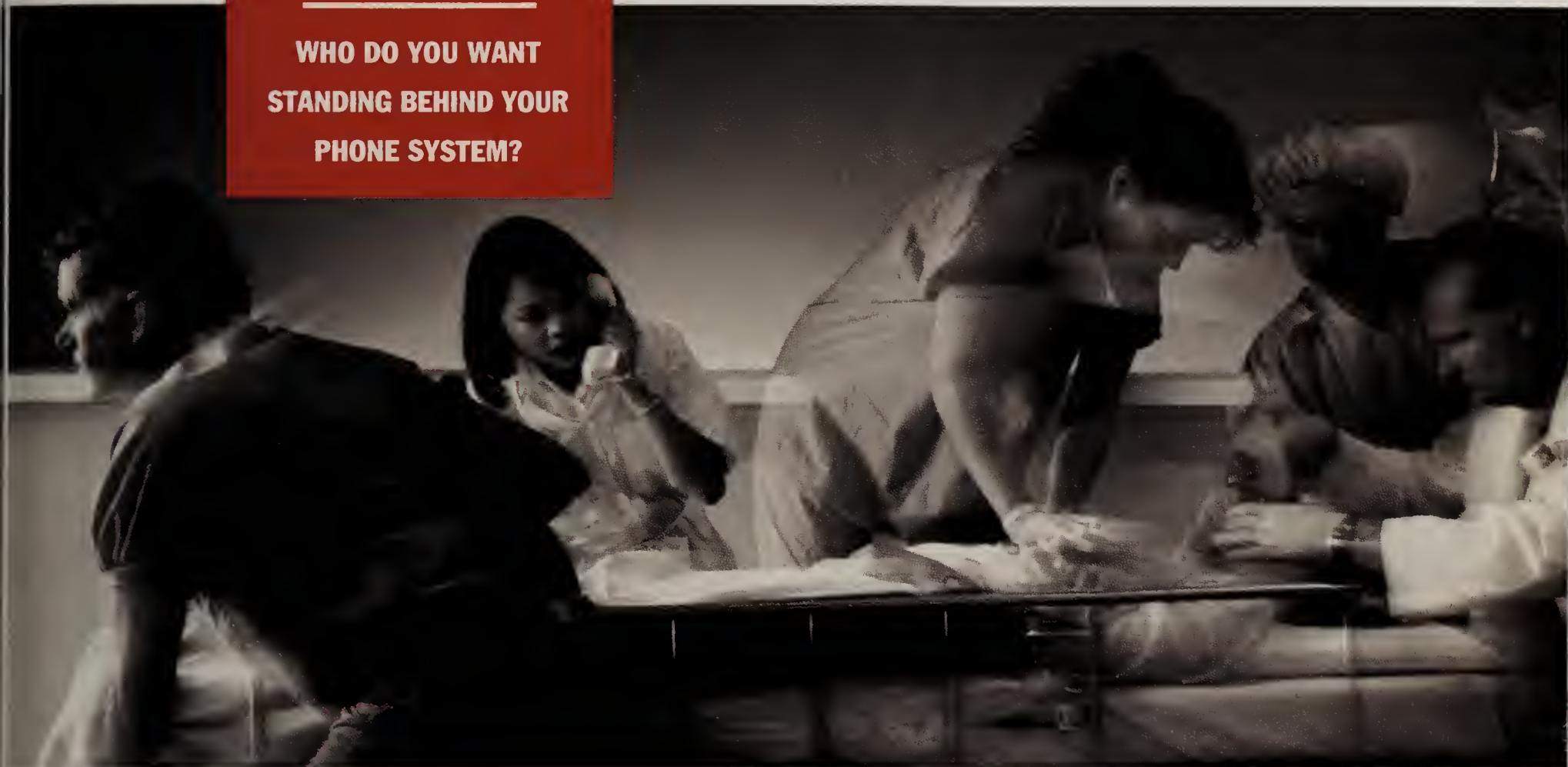
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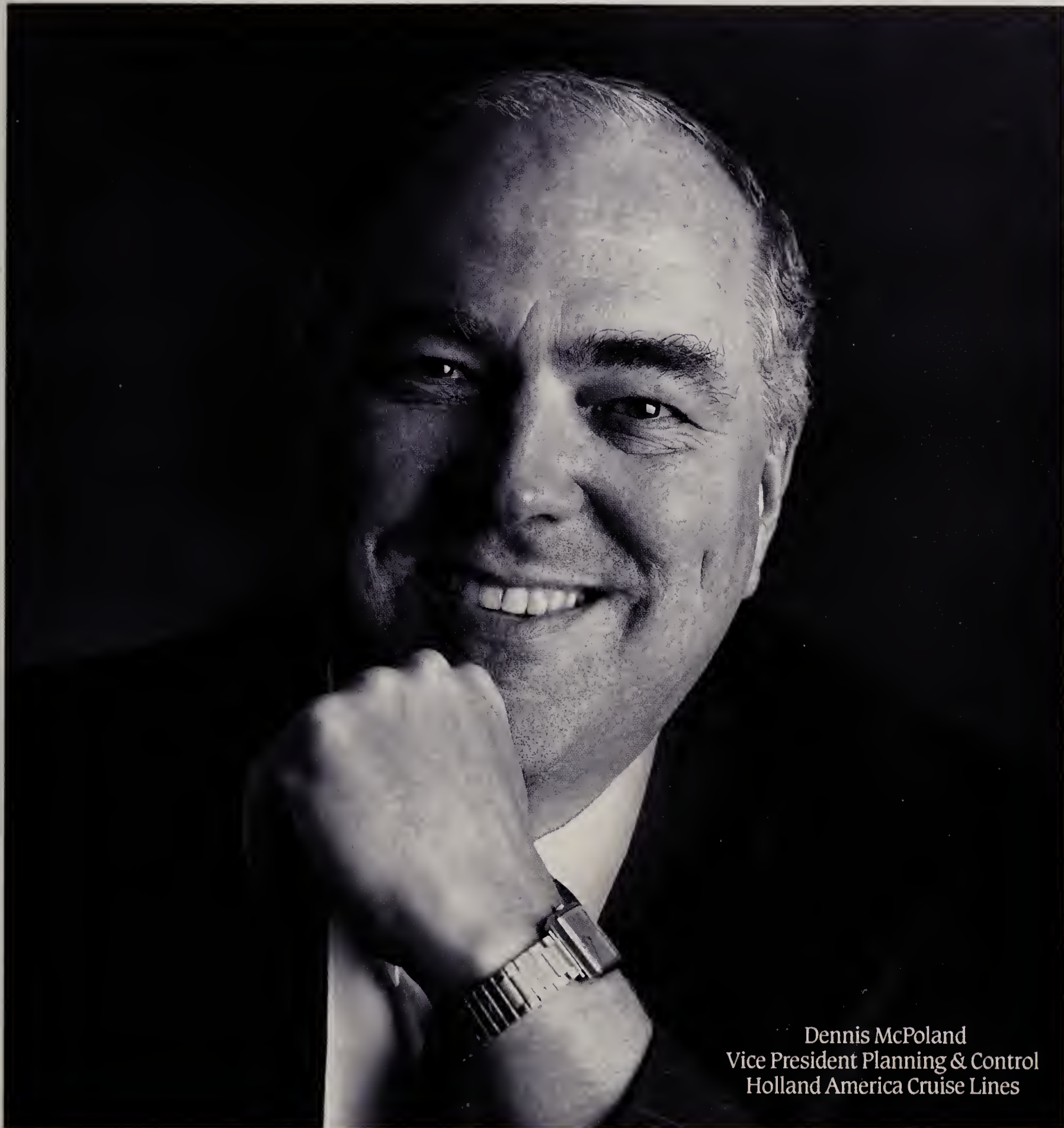
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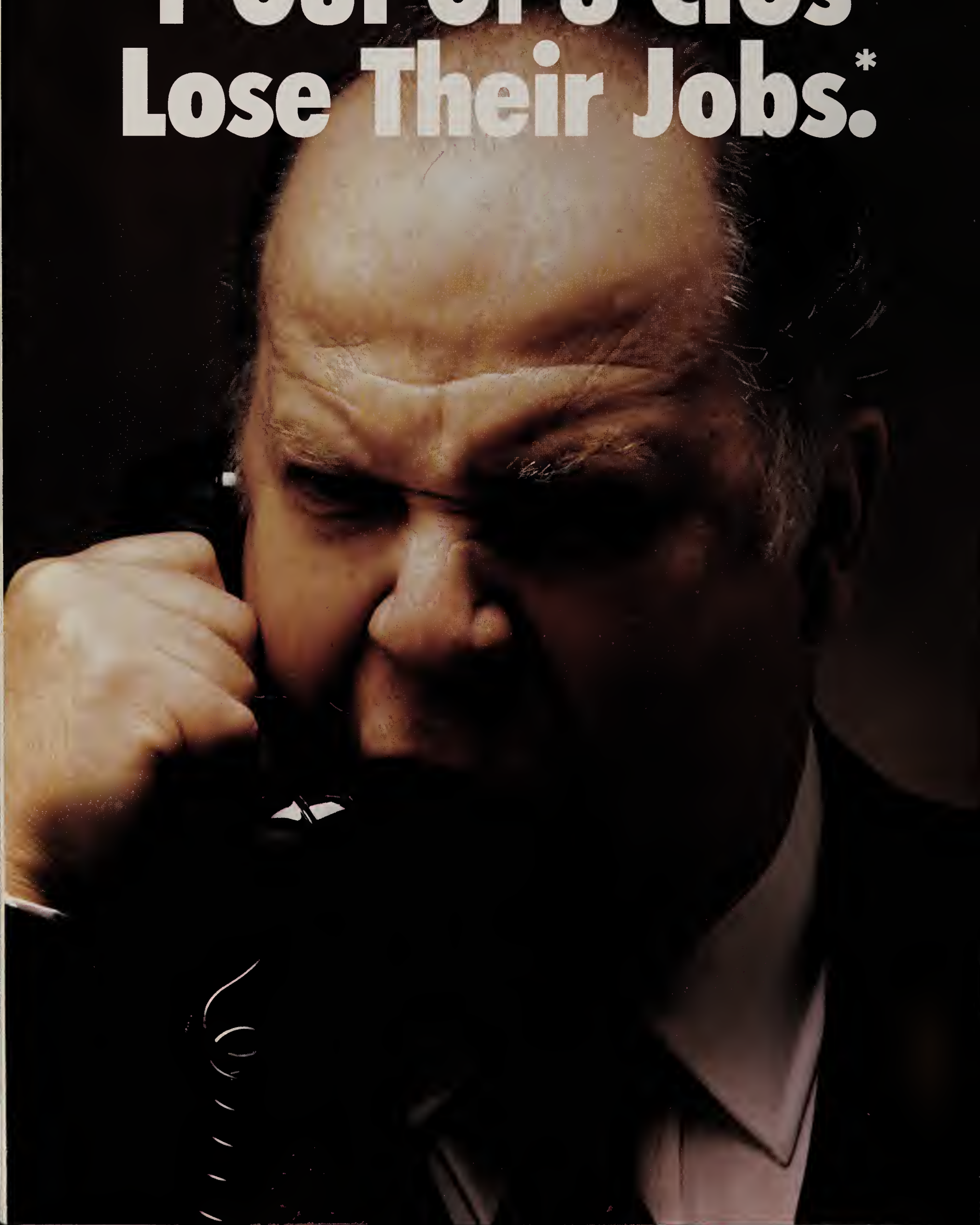
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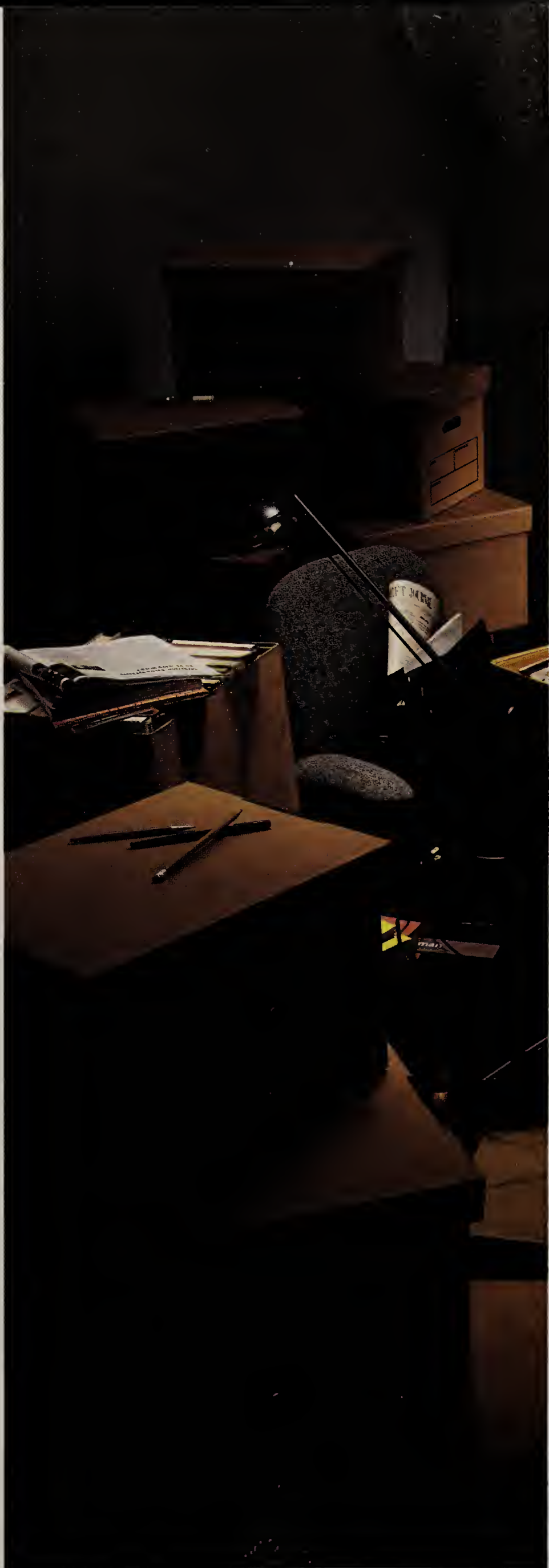
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Using Your Smarts

Once viewed as an esoteric technology, artificial intelligence has emerged as an invaluable tool for developing practical business applications

BY ALICE LaPLANTE

Although fascinating new research continues to emerge from artificial-intelligence laboratories worldwide, the most significant developments in AI over the past few years—at least from a CIO's point of view—have not been in the technologies themselves, but in how they are being applied to practical business problems.

This was evident at the Third Innovative Applications of Artificial Intelligence Conference, held last summer in Anaheim, Calif. Twenty-one mission-critical applications built using AI technology were applied to complex challenges faced in the airline, chemical-regulation, customer-service, manufacturing and financial arenas.

AI is currently perceived less as an esoteric technology than as an increasingly standard part of a traditional application-development toolkit, according to Reid Smith, director of the Schlumberger Laboratory for

Computer Science, in Austin, Texas, and program chair of the conference.

"What's important is not so much the changes in the technology as the fact that organizations are finally understanding how to implement and manage it," said Smith, who added that AI programming techniques can succeed where more traditional development methods fail. "With AI, we have a major opportunity to improve the efficiency with which our software can be developed."

Simply put, AI often succeeds where humans are overwhelmed by the complexity or volatility of a problem—particularly a problem that involves sifting through huge volumes of data, recognizing complex patterns, or applying a perplexing web of rules or conditions.

The innovative AI applications demonstrated at the conference included an expert system that helps an independent financial-consulting firm evaluate the stability of commercial banks; an automated way for the State of California to validate and process employee expense reports; and a scheduling system that produces viable curriculum timetables for junior high and high schools.

The flexibility that AI provides for tackling such problems is key, said Smith. Through techniques such as rule-based reasoning, object-oriented programming, pattern recognition, neural networks, fuzzy logic and a variety of other tools, IS programmers can get much closer to actual business scenarios than traditional languages or environments permit.

"Writing applications using traditional programming languages is anything but natural," said Smith. "With AI, we are moving the technology closer to the problem."

Another trend that was obvious at the conference: AI tools are leaving the proprietary world of special hard-



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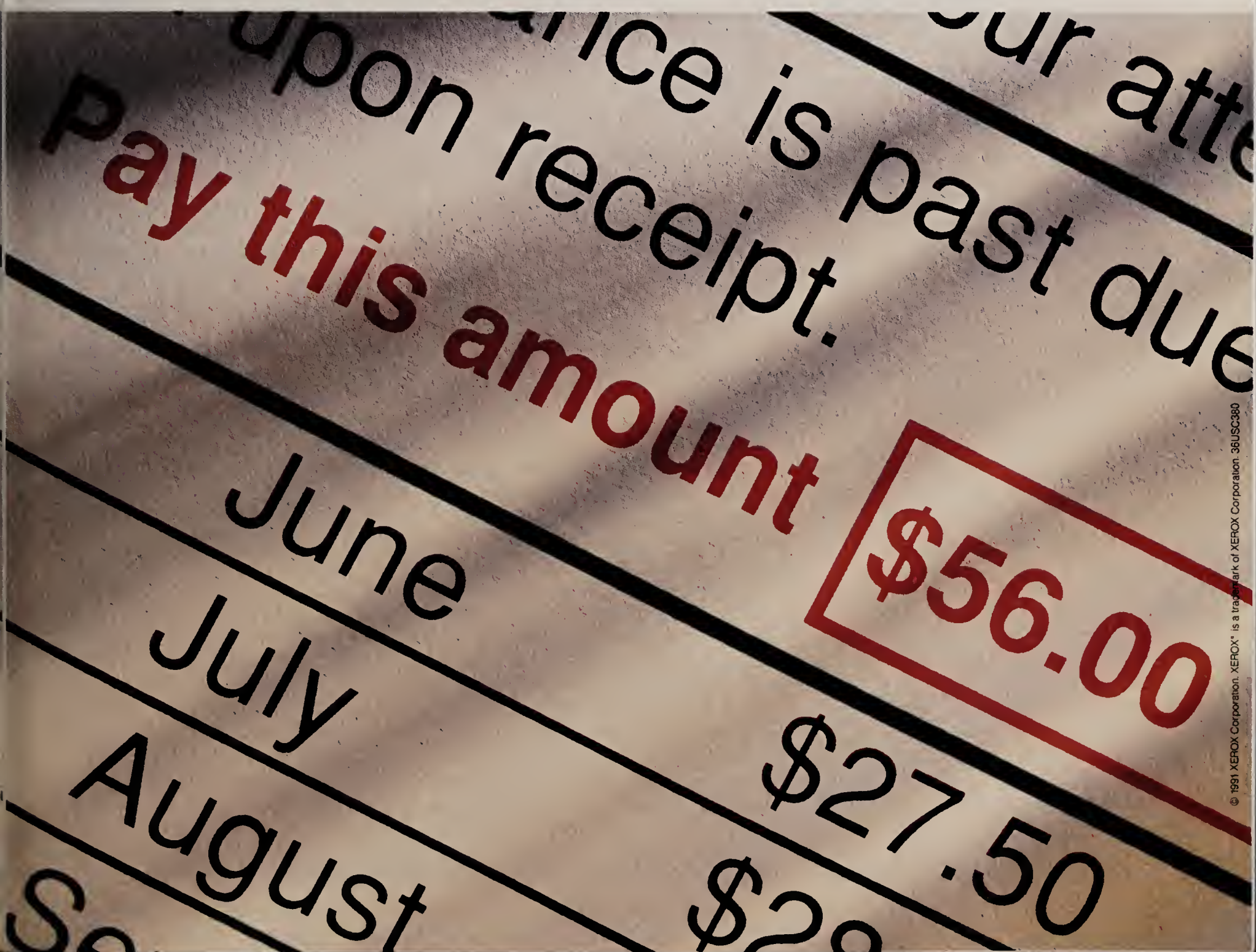
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ware and software behind and joining the IS mainstream. Most major AI vendors now offer their toolkits on every architecture imaginable, from PCs up to the largest IBM mainframes, under virtually every operating system in existence. "We saw a mix of applications being delivered on PCs and Unix workstations, as well as on traditional mainframes," said A. Carlisle Scott, co-chair of the conference. "And the technology itself is increasingly being hidden from the end user—the fact that AI has made these applications possible is completely invisible."

"We are seeing much more concern on the part of vendors about interacting with existing corporate databases, manufacturing facilities and all the other components of an organization's traditional systems structure," agreed Smith.

In addition to being available on more traditional platforms, the tools themselves are much more mature, according to Joe Carter, the partner in charge of the imaging and knowledge-based systems group at Andersen Consulting in Chicago. "They are there, and they perform," said Carter. "There are no longer any significant 'gotchas' you have to watch out for."

Carter believes that AI is also finally coming into its own because of corporations' increasing emphasis on knowledge-intensive strategies that rely on unique proprietary information, "knowledge assets," collected during the course of doing business.

"Most organizations have done all the brute-force automation they can do," Carter said. "At this point, the companies that will rise above the pack are the ones that make the best use of their knowledge assets."

American Airlines had a scheduling problem that seemed perfect for expert-system technology: Prior to 1990, the company manually scheduled its 550-plus aircraft fleet for maintenance using a paper-based system. Each day, human controllers in the Maintenance Operations Center, in Tulsa, Okla., planned how to route American aircraft—which fly over 2,200 scheduled flights a day to over 160 destinations worldwide—in order to get

them into maintenance within certain time intervals.

Besides the complex flight schedules that needed to be coordinated, controllers had to deal with unanticipated events such as bad weather, delayed and canceled flights and malfunctioning aircraft. Prior to the implementation of the expert system—called MOCA, for Maintenance Operations Center Advisor—in April 1990, several unsuccessful attempts had been made to automate the scheduling process using traditional programming methods.

"Writing applications using traditional programming languages is anything but natural. With AI, we are moving the technology closer to the problem."

—Reid Smith

MOCA was developed using Inference Corp.'s Automated Reasoning Tool (ART) and runs on Macintosh II microcomputers that contain a LISP co-processor board made by Texas Instruments. MOCA connects to American's flight-operations system, a host-based transaction-processing system that contains all information relating to daily operations, such as flight schedules.

MOCA's performance has been gratifying, according to American officials. The number of flight breaks—when a new aircraft is substituted in the middle of a direct flight for maintenance reasons—has been reduced substantially, and the average number of hours each aircraft flies before receiving its maintenance check has decreased 10 percent. Perhaps most important, the controllers say that MOCA routes aircraft more consis-

tently and efficiently than they did using the manual system—thus increasing safety and convenience for American passengers.

Deregulation has raised a number of difficulties for airlines. One of the thorniest is how to keep track of all the different fares and restrictions—and, subsequently, the commissions due to travel agents—that can change on a daily basis.

Due to the complexity of the task, another industry player, Northwest Airlines, had never attempted to audit the 60,000-plus tickets it sells daily. Yet it made good business sense to do such an audit, to ensure that tickets are being sold at prices consistent with the various restrictions and that the travel agents who sell the tickets are claiming the correct commissions. This is no easy task; up to 100 fares can be associated with any given Northwest destination, and Northwest has been known to change the restrictions for as many as 100,000 fares within a single business day.

A passenger-revenue accounting (PRA) system performs the arduous task of comparing each item on an airline ticket against the highly complex fare restrictions in order to detect discrepancies. For example, if a ticket is sold six days before a flight at a 14-day advance fare, the system would flag that transaction for manual review by a human staff member. The staff member would then contact the appropriate agent to find out how the mistake or discrepancy occurred and, if necessary, take actions to avoid future errors. The system also audits the commissions paid to travel agents.

The system was installed in May 1990, and the audits are performed every night on Sun 4/490 workstations. The annual payoff—in terms of catching restriction violations and commission errors—is substantial: Northwest estimates savings of \$10 million to \$30 million annually.

In the banking industry, profitability depends on lending money to the right people. Swiss Bank, headquartered in Geneva, developed an expert system to assist in avoiding improper credit decisions by providing workers with sophisticated and detailed financial information about commercial

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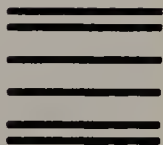
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CUBUS (which stands for Computerunterstütztes Bonitotsuntersuchungssystem) is a highly interactive system that displays such basic financial data as annual account information, balance sheets and profit-and-loss statements, and allows users to calculate standard financial ratios. Credit-approval workers within the bank have all this information—displayed in a friendly, graphics-intensive format—at their fingertips every time they make a credit decision.

In addition to providing users with a way to review and manipulate historical information, CUBUS also allows bank employees to perform simulations of future events—the results of which are displayed graphically. For example, users can do projections of the customer’s likely balance sheets and income statements for years to come and make changes in the projected interest rate, net income or other economic factors to determine the possible effect on the company—and thus on Swiss Bank’s credit decision. Users can also manipulate numbers to create financial ratios and measures.

The system will also highlight those financial ratios, numbers and balances that are out of the ordinary, or critical to a credit decision, and prompt users—many of whom are credit experts with knowledge of a particular company or industry—for additional information. Because credit approvals must be passed by several departments, CUBUS allows each user to add subjective information that is then passed on in the form of a “history” file.

When CUBUS is installed in all 20 branches, Swiss Bank estimates that it will save \$500,000 annually in personnel costs, and that improved credit decisions will save \$1 million in losses annually. The system cost less than \$2 million to develop and is delivered on the bank’s industry-standard desktop hardware: IBM PS/2 Model 70 microcomputers.

At Dun & Bradstreet, in Basking Ridge, N.J., the Credit Clearing House division reports credit ratings

and makes spending-list recommendations for subscribers seeking information about businesses in the apparel industry.

To provide this service, CCH depends upon analysts’ ability to make consistent decisions across a broad range of credit scenarios, to respond in a timely manner to customer requests and to maintain up-to-the-minute data on the credit-worthiness of businesses.

“Most organizations have done all the brute-force automation they can do. At this point, the companies that will rise above the pack are the ones that make the best use of their knowledge assets.”

—Joe Carter

Before using AI, CCH needed a staff of 15 to maintain a massive database on the approximately 140,000 businesses it covered. Yet CCH estimated that it was losing potential revenue because it didn’t have the resources to include the credit histories of other apparel businesses of potential interest. In addition, the average tenure of a CCH analyst was approximately two years—making CCH vulnerable to employee turnover.

In 1987, CCH decided to investigate expert-system technology, and after extensive prototyping and piloting implemented the CCH Expert System in 1989.

The expert system cost about \$1 million to develop and contains about 800 rules. When a customer calls in requesting credit information on a particular business, the system goes through three assessment modules: a payment analysis, which looks at the

historical payment and credit record; a financial analysis, which looks at current and recent financial statements; and a business analysis, which looks at the strengths and weaknesses of the business as a whole. It then arrives at a credit rating and recommendation, and sets an actual recommended credit limit in dollars.

For CCH customers, benefits include higher quality and more consistent recommendations, since the rules in the expert system are based upon the experience of the most senior CCH credit analysts. The information is also more up-to-date than that provided by the manually maintained database. Response to customer requests is more rapid. Finally, subscribers now have access to a much broader spectrum of credit history—with the database expanded by 20 percent, or 20,000 new cases.

For CCH, the benefits have been manifold. The cost of providing subscribers with ratings and recommendations has been reduced. Staffing requirements have also declined, as have employee turnover concerns; with much of the expertise in the system itself, CCH is less vulnerable to individual analysts leaving.

AI experts believe that these and other applications provide a glimpse of how the technology is rapidly being incorporated into mission-critical applications.

Scott, who has participated in the AI industry since its infancy, said that the highly publicized trauma that AI vendors have gone through in the past five years is not stopping the spread of the technology. “There was a lot of hype a few years back that proclaimed AI was going to save the world,” she said. “When that didn’t happen, everyone said AI was dead. The reality is quite different.”

What has been happening—and will continue to happen—is a slow but steady seeping of AI technology into the corporate mainstream, according to Scott, Smith and others. “The best way to judge the technology is to look at these applications,” said Scott. “Could these problems be solved using traditional methods? The answer is probably no.” [CIO]

Alice LaPlante is a freelance writer based in Palo Alto, Calif.

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When you're spending millions on a mainframe, it had better have a no-nonsense name like 3090 or 4381. A mid-range system, however, offers some relief with regard to price and, in the case of IBM's new Plug'N'Go applications, with regard to nomenclature. In September, IBM introduced a family of low-cost AS/400s and easy-to-install applications. Designed for small businesses and remote installations of large companies, the AS/400 DO2 goes for about \$12,000 and includes a 90-day, money-back guarantee for small businesses. IBM hopes the DO2 will provide an alternative to Unix workstations and PC-LANs for companies that need a lot of processing power and flexibility. Its 17 Plug'N'Go applications can be installed at the customer site or preloaded at the factory. Plug'N'Go prices range from \$499 to \$12,000. Call 914 642-3000.



Oracular Communications

Oracle users take note: A new version of SQL*NET is available that will allow clients and servers to communicate using any combination of network protocols. Along with a companion product, called the MultiProtocol Interchange, SQL*NET will allow Oracle-based applications to powwow with each other across disparate multivendor platforms and networks—even though many of the machines linked by the software may not be able to talk to each other. For example, with SQL*NET version 2, Oracle applications running in a Novell SPX/IPX network could access Oracle databases running in SNA, TCP/IP, and DECnet networks. Essentially, the software connects consenting applications, rather than the hardware, but Oracle says the effect is transparent, peer-to-peer connectivity. Oracle has announced that SQL*NET and MultiProtocol Interchange will be available for a variety of environments by the end of the year, including DEC VAX, AIX, HP/UX, MVS, OS/2 and MS-DOS. Prices will vary widely, depending upon configuration. For more information call 800 562-0720.

High (Performance) RISC

Okidata Microsystems Division has targeted its new series of four powerful Unix desktop systems for client/server installations running document-imaging, decision-support, desktop-publishing and geographic-information-systems applications. Introduced last fall, the 7300 family is based on Intel Corp.'s i860 reduced instruction-set computing chips and will be sold through value-added resellers.

At the low end, the \$7,995 Model 7310 diskless workstation runs at 25 MHz and can process 40 MIPS. It comes with a monitor and 8MB of system memory. The Models 7320 and 7330 are earmarked for personal desktop applications. Their 40-MHz chip can process 64 MIPS, and the machines come with color monitors, 16MB of memory and a 200MB hard disk. Okidata builds the 7320 with an AT bus, while the 7330 offers the Extended Industry Standard Architecture bus. The workstations retail for \$13,985 to \$31,100. Lastly, the 7335 workgroup server is similar to the 7330, but substitutes 32MB of memory, a 400MB hard disk and an external expansion unit incorporating a tape drive and 660MB hard disk. This model costs \$26,235 to \$39,655. For details call Okidata in Marlborough, Mass., at 508 624-7000.

A Protean Printer

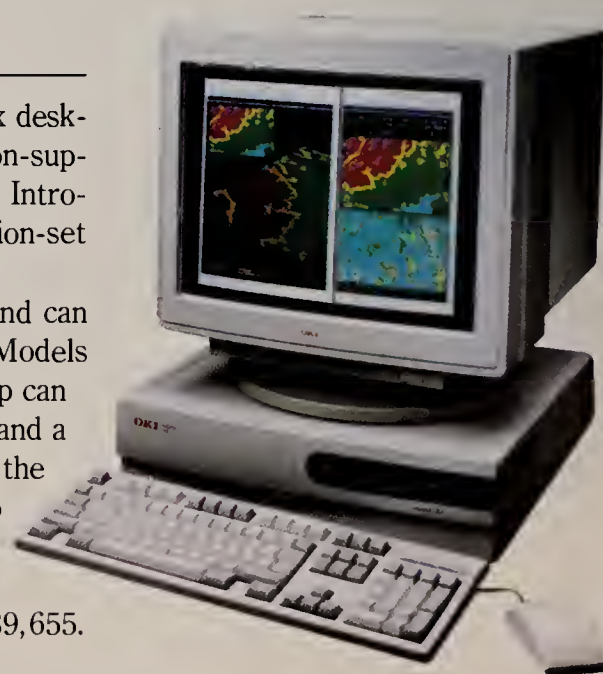
That printer sitting in the hub of your computer network doesn't have to be one-dimensional anymore. With the ICC-FAX, it can be modified to send and receive faxes in addition to churning out hard copy.

According to developer International Computers & Communications (IC&C), the ICC-FAX is the first printer-based facsimile board. Since the product resides inside a printer, entire networks can send faxes from individual terminals. The board also operates independently from PCs and workstations so work doesn't need to be interrupted while faxes are coming or going.

When sending a fax, the laser-printer fonts, graphics and formatting are maintained. A command is used to "tell" the ICC-FAX whether a document is for print or fax.

The ICC-FAX is designed to work with Hewlett-Packard LaserJet II or III printers, or any other printer driven by a Canon engine. The board contains a telephone-line interface, a 9600 bps fax modem and a 512K memory, and is installed by inserting it into the external option I/O slot of the printer. The manufacturer's suggested retail price is \$649.

For more information, call IC&C at 213 836-7561.





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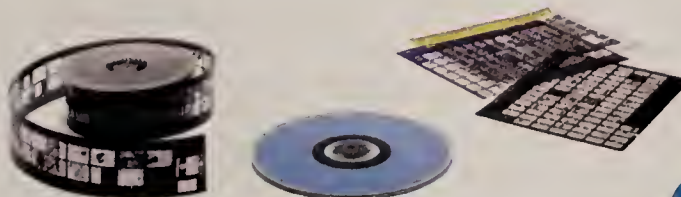
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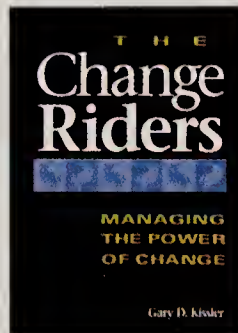
THE CHANGE RIDERS

Managing the Power of Change

By Gary D. Kissler

Addison-Wesley Publishing Co. Inc.
(Reading, Mass.), 1991

314 Pages, \$25.95



"There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage, than the creation of a new system," wrote Machiavelli in 1513.

"For the initiator has enmity of all who would profit by preservation of the old institution and merely lukewarm defenders in those who would gain by the new ones."

Gary D. Kissler uses this quote to illustrate the fundamental difficulty faced by forward-looking leaders, or change riders, as Kissler dubs them, in their attempts to effect change. (He also recalls Thomas Edison's efforts to convince New York leaders to convert streetlights from gas to electricity despite demonstrations by opponents who, each day of the de-

liberations, would gather at noon and "electrocute a dog to demonstrate the danger of electricity.")

The need for change, writes Kissler in *The Change Riders*, is real and pervasive throughout the U.S. business community. He cites the social, economic and technological forces of the '80s as driving this need, which most companies fail to recognize. Like the "boiled frog" in a biology class, he writes, organizations adjust to gradual changes in their environment. "The frog will adjust its body temperature to that of surrounding water, even to the point of ultimately being boiled to death—provided the change is gradual." Eventually, he believes, organizations "lose their ability to be adaptive, unless some ruinous event takes place that sweeps away all the pretense and commands [their] managers to act precipitously to survive." Kissler hopes to convince business leaders of the need to change before it's too late.

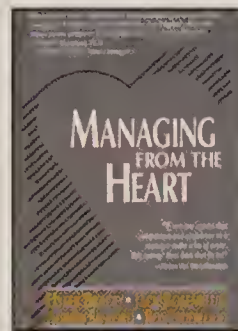
The Change Riders is part of the Addison-Wesley Middle Managers Series, which, according to Consulting Editor W. Warner Burke, is de-

signed to "build bridges" between the best in management theory and the practice of that theory in the real world. Kissler, himself a consultant, uses the experiences of an actual (though disguised) company as it underwent massive change. At the same time, he attempts to provide a broader, more theoretical infrastructure within which the case study can be more universally considered. The goal of the book, he writes, is to help leaders and managers develop the skills necessary to manage from within change.

The Change Riders explores the "new organizational and management paradigm" and the challenges it poses for today's organizations; the impact of change on the people involved, and how to reduce the turmoil and better manage "human assets." It also looks at how organizational success can cover up bad management practices, and the serious—though often hidden—problems which those practices create. A final chapter, called "Blueprints and Roadmaps," provides a change-management organizational model and a framework for planning that change.

MANAGING FROM THE HEART

By Hyler Bracey, Jack Rosenblum, Aubrey Sanford and Roy Trueblood
Delacorte Press (New York), 1991
208 Pages, \$17.00



As a measure of management effectiveness, caring probably doesn't make it into very many quarterly plans, but *Managing From the Heart* argues effectively

that it can play an important role in improving the corporate bottom line. Management consultants Hyler Bracey, Jack Rosenblum, Aubrey Sanford and Roy Trueblood outline a compassionate, relationship-oriented management style based on their experiences with corporate clients at The Atlanta Consulting Group. The authors believe that in order to plan

for a company's mission and to train and motivate employees toward fulfilling it, managers must exhibit caring as well as confidence and competence. The concept of caring management is based on mutual respect, communication, compassion, trust and praise. The authors have incorporated these elements into five rules for living: "Please don't make me wrong, even when you disagree"; "Hear and understand me"; "Tell me the truth with compassion"; "Remember to look for my loving intention"; and "Acknowledge the greatness within me."

The book's weakness is the authors' fictional approach to illustrating caring management. In a cross between "Regarding Henry" and "Heaven Can Wait," they tell the story of Harry Hartwell, a hard-nosed oil-refinery head whose plant is tops in production but is plagued by high turnover and low morale. A heart at-

tack puts a comatose Harry into the hospital, where he is visited by an angel who informs him that he will get a second chance at life if he successfully applies the five rules of caring management. Love and compassion are highly suspect in the business world. Angels do little to further their cause. Still, readers who can get beyond the mechanics of the book will find it a valuable manual for applying caring management rules in real-life business situations. Despite the coy approach and some simplistic storytelling, the authors manage to illustrate clearly a difficult-to-interpret set of rules.

While the book's emphasis on spiritual growth and love offers a barn-sized target for cynics and critics of "soft" management theories, its message of humanizing the corporate culture promises the indisputably hard benefits of more productive employees and a better bottom line.

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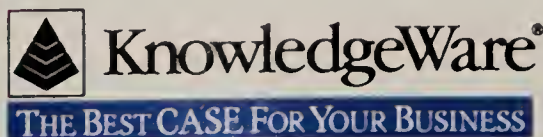
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